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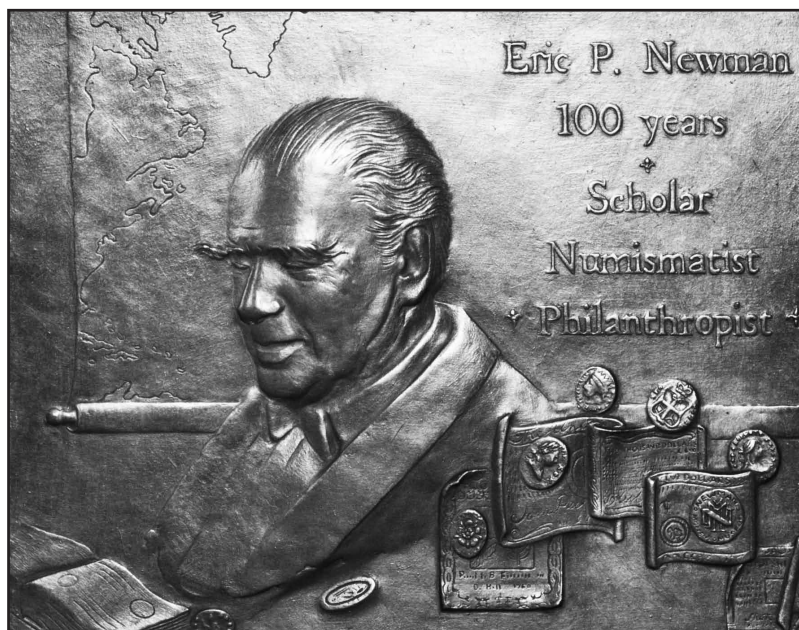
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Submitting Material for Publication

We encourage our readers to consider submitting material on early North American numismatics to *CNL* for publication. In general, this includes coins, tokens, paper money, and medals that were current before the U.S. Federal Mint began operations in 1793. However, there are certain pieces produced after the 1793 date that have traditionally been considered part of pre-Federal numismatics and should be included. We cover all aspects of study regarding the manufacture and use of these items. Our very knowledgeable and friendly staff will assist potential authors to finalize submissions by providing advice concerning the text and help with illustrations. Submissions in either electronic or hard copy format, should be sent to the editor via the e-mail address given above or through the ANS at their postal address. Electronic text submissions should be formatted in Word with separate grayscale images.



Editorial

Since the last issue of *CNL*, a new milestone was reached in the history of the modern study of colonial numismatics. On May 25, 2011, one of the pioneers of early American numismatics, Eric P. Newman, celebrated his 100th birthday. The Editor and the entire staff of the *Colonial Newsletter* join the much larger American numismatic community in offering their best wishes to Eric on this most important of birthdays. It is impossible to overestimate the impact that he has had on colonial numismatists, either indirectly, through his numerous books and articles, or directly, through his generosity with time and information. The understanding and enjoyment of the coins by both the *CNL* editorial staff and readership is richer because of him.

For a detailed survey of Eric Newman's contributions to American numismatic scholarship, readers are invited to read Robert W. Hoge's "Numismatic Publications of Eric P. Newman: A Salute to a Centenarian" in *ANS Magazine* 10.2 (2011), pp. 10–19. A bronze portrait plaque in Eric's honor (illustrated above) has also been commissioned by the American Numismatic Society.

In this issue of the *Colonial Newsletter*, we are extremely pleased to present a new article by

Christopher Salmon dealing with the metallurgical composition of the Salmon 13-X (Noe 13) Pine Tree shilling. Although this is the first time that Chris has published his observations in the *Colonial Newsletter*, most readers will already know his meticulous work on MA silver from his recent book, *The Silver Coins of Massachusetts* (New York, 2010). This volume is published by the American Numismatic Society and may be ordered online at <http://numismatics.org/Store/MassSilver>.

Roger Moore and Marcus Mayhugh conduct a survey of the flip-over double-strike error in the New Jersey copper series. Their study not only serves to expand our understanding of this very rare minting error (at least for NJs), but poses several interesting interpretive questions

Continuing the counterfeit theme that has run through the last two issues, Roger also returns to his longtime interest in counterfeit British halfpence to provide us with a full presentation of a new Family: the Swollen Jowls. This article now increases the number of Families that have received detailed treatment in print and suggests a new and more thorough method for describing cross-Family "style mules."

CNL 146 includes a fourth set of plates designed to eventually cover the full colonial collection of the American Numismatic Society. In this issue, the plates feature the Society's holdings of Vermont coppers (Bressett 16-U to 22-U), Connecticut coppers (Miller 4.4-C), New Jersey coppers (Maris 21-N to 23-P), and Massachusetts cents (Ryder 11-C to 13-N).

As the final plate of the ANS Vermont holdings will appear in the December issue of the *Colonial Newsletter*, readers are invited to suggest a new area of the collection that should be plated.

Oliver D. Hoover
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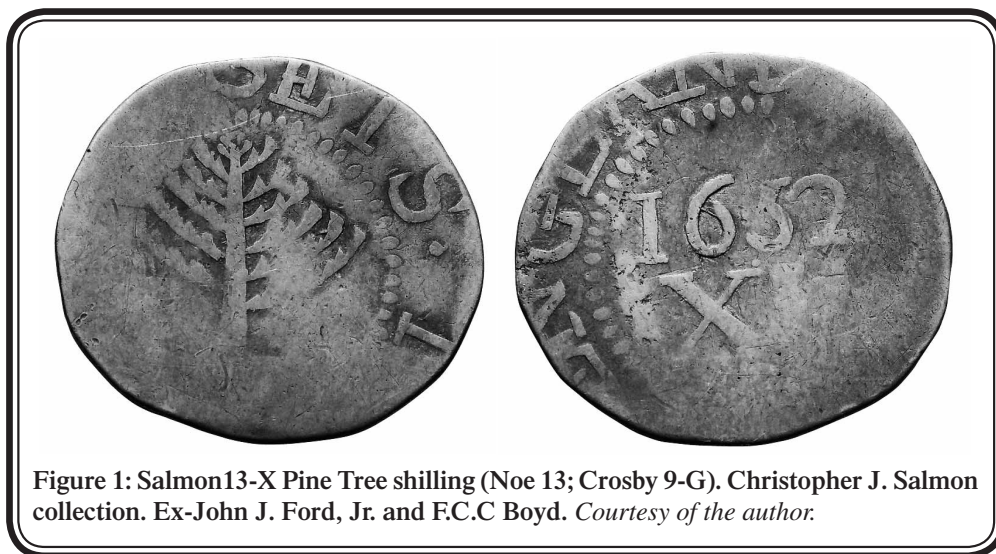
**Silver Content of a Circulating Counterfeit of the Massachusetts Silver Series:
Iconographic Similarities of a Previously Uncatalogued Circulating Counterfeit Overstrike**

by

Christopher J. Salmon; Paradise Valley, AZ

The Massachusetts Silver coins of the mid- to late seventeenth century are known to have circulated widely and for a considerable time—even to the Federal period and beyond (Newman 1973, p. vii; Newman 1998, pp. 267–270; Trudgen 1984, p. 897). During this prolonged term of commercial use, several varieties of counterfeits were produced that can now be identified. One of these, the Salmon 13-X Pine Tree shilling (Salmon 2010, pp. 21 and 31), was classified as a regular mint issue by both Noe and Crosby and is traditionally referred to as the Noe 13 or Crosby 9-G variety (Noe 1952, p. 34 and plate II; Crosby 1875, p. 59 and plate II).

The 13-X is very similar in quality and design to the 14-X (Noe 14; not in Crosby) and 15-X (Noe 31; Crosby 8-E) varieties (Noe 1952, pp. 34-35 and 39; plates II-IV; Crosby 1875, p. 59), which were probably produced by the same workshop (Salmon 2010, p. 21). Little specific physical information is available in the existing literature for examples of these rare varieties, except for their weights and diameters.



We have determined the silver content of a Salmon 13-X Pine Tree shilling (Fig. 1) by X-ray microanalysis performed on a Philips XL-30 Environmental Scanning Electron Microscope. To our knowledge this is the first elemental analysis of a 13-X Pine Tree shilling or any other circulating counterfeit of the Massachusetts silver series.

We also present and classify a previously uncatalogued circulating counterfeit Pine Tree shilling that is overstruck on a Spanish-American 1-*real* piece and discuss its significance and its relationship to the above-mentioned counterfeits of the Massachusetts silver coinage.

Scanning Electron Microscopy and X-Ray Microanalysis: Methods and Results

A full description of the techniques and applications of scanning electron microscopy (SEM) and attendant X-ray microanalysis is beyond the scope of this paper, and the interested reader is encouraged to consult dedicated references for additional details (Goldstein 2003). For current purposes, the general concepts of the techniques are outlined to help explain the approach and results of our investigation.

SEM allows topographic imaging over an extremely wide range of magnification, spanning from the degree of enlargement seen by familiar low power light microscopy down to the nanometer scale. The most common application of SEM is in obtaining topographic images in the 10x to 10,000x range. The investigative power of SEM extends much further than this, both in terms of the still higher degrees of image magnification that are possible and in the important additional means of inquiry that are provided by the technique.

With SEM, the surface area to be examined—or the microvolume to be analyzed—is irradiated with a finely focused electron beam. The beam may be swept in a raster pattern across the surface to create images or may be static at one position to analyze features at that single spot. The incident electrons produce a variety of signals in the sample, including backscattered electrons, secondary electrons, and characteristic X-rays, as well as other photons of differing energy. These signals are analyzed in various ways to yield information on surface topography, crystallography, elemental composition, and other characteristics of the examined “emission volume” of the specimen.

SEM imaging is accomplished principally with the signals obtained from secondary and back-scattered electrons since these signals vary primarily according to changes in surface topography. The results are often extraordinarily vivid and immediately appreciated and understood by even uninitiated observers since they so strongly resemble images from everyday life. Although they are produced by electrons (and not light) the images give an impression of “shadowing” and “illumination” that is subjectively analogous to daylight vision.

The characteristic X-rays emitted by electron bombardment provide important information regarding chemical composition in an approximately one cubic micrometer volume at the surface of the specimen. This form of analysis is especially attractive in numismatics because it is completely non-invasive and does not harm the coin being examined in any way. We therefore chose this technique for the current study.

Additional modalities for non-destructive analysis that have also been validated for the examination of silver coins (Rodrigues 2010, p. 351) include synchrotron micro X-ray fluorescence analysis (SRXRF), energy dispersive X-ray fluorescence (EDXRF), and proton-induced X-ray emission spectroscopy (PIXE).

Still other ancillary methods of analysis that have been employed by investigators involve removing a part of a coin and examining it by spectroscopy or other methods, similar to a medical biopsy of a tissue or tumor. The size of the removed physical sample by these invasive techniques varies, with the smallest samples produced by using a diamond lapping film to collect the specimen (Talib 2004, p. 157). In more extreme cases, coins are sawed apart (Ingo 2002, p. 329; Ingo 2004, p. 319; Ingo 2006, p. 493; Pistofidis 2006, p. 639; Pistofidis 2010, p. 2167) or fractured at low temperature with liquid nitrogen (Ingo 2002, p. 329) prior to analysis. These destructive processes are frankly impractical for routine use on numismatic or other important cultural objects.

We performed thirteen discrete measurements by SEM X-ray microanalysis at different target regions of the Salmon 13-X Pine Tree shilling. The alloy content for the thirteen samples of the coin were as follows (all data reported in weight percent):

SAMPLE	SILVER (AR)	COPPER (CU)	IRON (FE)
1.	94.23	5.77	
2.	96.80	3.20	
3.	97.02	2.98	
4.	96.90	3.10	
5.	96.62	3.38	
6.	94.42	5.58	
7.	93.60	6.40	
8.	96.37	3.63	
9.	94.58	5.42	
10.	96.59	3.41	
11.	94.29	3.47	2.24
12.	96.77	3.23	
13.	96.82	3.18	
Average:	95.77±1.30	4.13±1.23	N/A
Range:	93.60 to 96.90	2.98 to 6.40	N/A

Table 1. Average percent silver and copper composition by weight from thirteen test sites of a Salmon 13-X Pine Tree shilling.

The above analyses were made by interrogating different areas (i.e., selecting several different emission volumes) of the coin's obverse and reverse surfaces. Topographic SEM images of the coin were first obtained, and appropriately smooth areas of the coin surface were then selected for X-ray microanalysis. Regions free of encrustation were generally chosen, since these were expected to give more representative results in terms of internal content of flan fabric. Areas on both obverse and reverse were examined, chiefly on the smooth background fields rather than on struck-up elements, such as letters, numerals, inner circle dots, or tree (Fig. 2).

One exception to this exclusive approach was in selecting the area from which sample 11 was obtained. In this case the smooth surface of the numeral 6 of the date was examined, revealing a small, but apparently significant, iron peak. The reason for this seeming anomaly of discernible iron content is not certain. We posit that it could be an artifact of striking with an iron or iron alloy die which left microscopic ferrous residue on the surface of the 6. The proportion of iron appears to be too high for a contaminant introduced by damage or circulation subsequent to striking. The proof of this hypothesis awaits confirmation by future analysis of other coins.

Interestingly, the areas of encrustation, also intentionally selected by visual inspection of SEM surface images, yielded markedly different results.

For example, apparent encrustation along the edge of the right side of the long upper stroke of the numeral 6 in the date (Fig. 3) yielded the following analysis:

CARBON	44.82%
OXYGEN	25.79%
SILICON	1.32%
SULFUR	0.77%
CHLORINE	1.18%
SILVER	4.41%
POTASSIUM	0.87%
COPPER	1.81%

These results most likely represent a combination of organic material and local corrosion with a small contribution from soil silicates (Ingo 2006, pp. 494–497). There is evidence of significant silver in the interrogated volume, but no iron is seen. The silver peak may arise by inclusion of a small amount of the coin surface within the sampling volume but more likely reflects the presence of silver within surface patina and corrosion.

To ensure reliable and representative results for internal elemental composition of a coin by SEM X-ray microanalysis, it is critical that only non-corroded areas of the coin be analyzed. When a silver coin becomes corroded (Linke, *et al.* 2004, p. 174), the base metal components (copper, lead, tin, etc.) of the alloy oxidize and the surface becomes depleted of these elements, leading to a relative “enrichment” of the precious metal constituents (silver and gold). The most common corrosion products of silver (Craddock 2009, p. 388) are silver chloride (*horn silver*, AgCl) or silver sulfide (*silver glance*, Ag₂S; also the principal component of “tarnish”), depending on specific burial conditions.

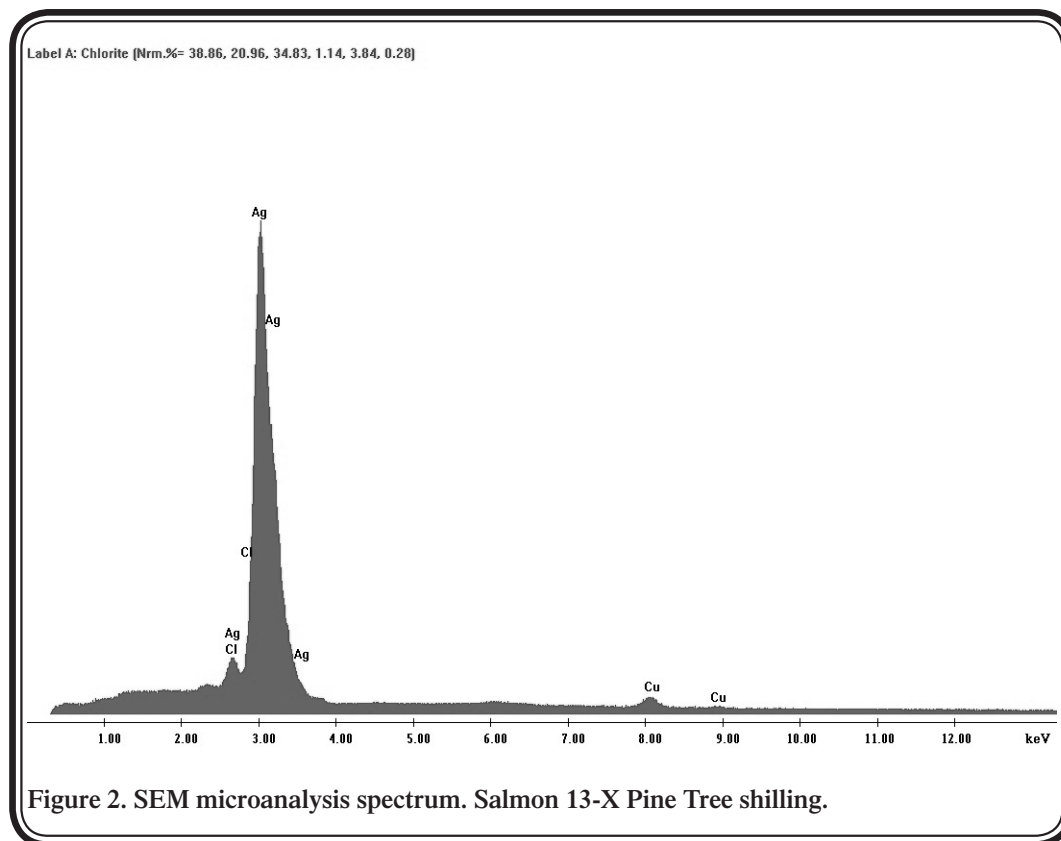


Figure 2. SEM microanalysis spectrum. Salmon 13-X Pine Tree shilling.

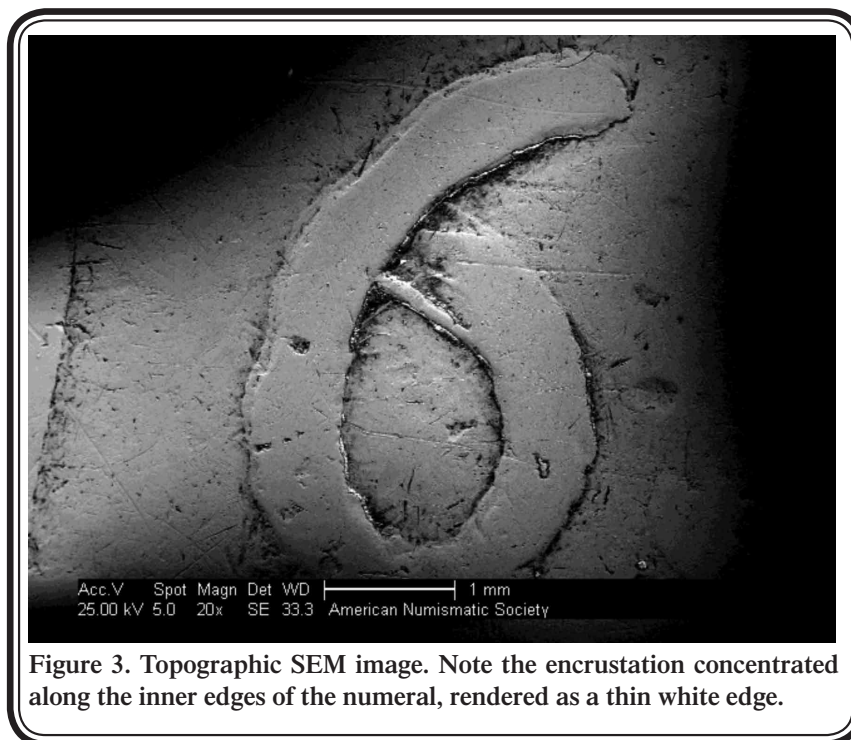


Figure 3. Topographic SEM image. Note the encrustation concentrated along the inner edges of the numeral, rendered as a thin white edge.

Copper can be detected in areas of corrosion on silver alloy coins. Copper salts contribute significantly to corrosion on silver coins when the copper constituent of the coin's fabric oxidizes. Oxygen forms corrosion compounds with copper (Ingo 2006, p. 497), especially copper oxide (*cuprite*, Cu_2O). In some instances, "bronze disease"—induced by cuprous chloride (CuCl), oxygen, and humidity—can occur within copper-enriched islands on a silver coin's surface (Ingo 2006, p. 496).

Our coin was not appreciably corroded, except, for instance, in the narrow zone of encrustation along the margin of the numeral 6 where small but significant chlorine, copper, and sulfur peaks—typically seen with silver coin corrosion—were detected by X-ray microanalysis. These analytical results are comparable to those of Ingo and co-workers in their study of corrosion on silver Roman coins (Ingo 2006, p. 494–497). Their detailed analysis identified copper oxide, which could account in part for the oxygen seen in our case, although the marked predominance of both carbon and oxygen in our measurements indicates a more significant contribution by organic material. In any case, the finding of multifarious surface contaminants in an area of manifest (by inspection of SEM imaging) encrustation and corrosion further underlines the importance of selecting areas free of such irregularity when analyzing elemental content of coins by SEM X-ray microanalysis. The lack of significant corrosion on our study coin is consistent with a high grade alloy that is relatively free of impurities (Ingo 2006, p. 493).

Discussion of High Silver Content in a Circulating Counterfeit

The finding of silver fineness exceeding sterling (i.e., greater than 92.5%) in a circulating struck counterfeit of the Massachusetts coinage is surprising and unexpected. One might naturally assume that the coin's fabricators would employ an alloy of minimum feasible silver content in order to maximize the profits of their unlawful enterprise. There are several possible explanations to account for the unusual fineness, weight, and overall appearance of the Salmon 13-X Pine Tree shilling that we studied (and possibly also of the related 14-X and 15-X varieties, although their silver content remains to be determined).

The first consideration is the source of the silver. The easiest obtainable source of silver bullion for the counterfeiter of the late seventeenth or eighteenth centuries was circulating specie. The most important of these were the Spanish-American 8-*reales* and its fractions that had an authorized silver content of 93.05% until 1728. Such coins, assayed at the Tower Mint in 1714, were found to have as much as 93.3% silver (Mossman 2011). It is possible that similar high content Spanish-American issues may have been used as a source of the metal in the 13-X without significant alteration. Considering the close relationship between colonial New York and Dutch merchants, there is also the chance that high grade *ducatoons* from the United Provinces or Spanish Netherlands—with upwards of 94.4% silver content—were the raw material for any New York-based counterfeiters (Mossman 1993, pp. 48–52, 63–68).

The eight examples of the 13-X for which weights are known to us (Mossman 2011) include the following:

1. The study coin: Salmon; Ford, lot 105; Boyd	39.2 grains
2. Hain, lot 129; Vlack	51.2 grains
3. Roper, lot 33	47.2 grains
4. Massachusetts Historical Society; Noe 1952, p. 34	47.6 grains
5. Norweb, lot 1204	43.7 grains
6. Eliasberg, lot 2024	45.5 grains
7. ANS 1955.83.1	34.0 grains
8. ANS 1964.66.1	39.7 grains

The average weight for these is 43.5 ± 5.6 grains. This is essentially identical with known weights for four examples of the 14-X variety (43.5 ± 4.9 grains). The only known example of the 15-X is holed and weighs 36.4 grains. Examples of all three varieties are drastically underweight, though consistent with one another within a close range. All appear worn and clipped to a short flan size. The foregoing strongly suggests that they were made to mimic clipped and worn pieces in order to conceal their illicit nature and facilitate their commercial use, as discussed in detail below.

The high proportion of silver shown by the study coin may indicate that the output of the counterfeiter was meant to pass “by tale” as a lightweight shilling in New England, approximately contemporary with the standard mint issues. If this were the case, the counterfeit coinage would yield a profit of up to 40% based on a theoretical shilling weight of 72 grains [$(72 - 43.5)/72 = 40\%$].

Alternatively, the 13-X, 14-X, and 15-X may have been intended to circulate outside New England. During the last decade of the seventeenth century, precious metal coins began to be accepted only by weight. This essentially removed the incentive for clipping coins—coins of reduced weight would no longer be accepted at full value. After 1693, the weight standard for a Spanish American 1-*real* was set at 45 grains (based on an 8-*reales* standard of 15 dwt) in New York and Philadelphia, where the New England coinage had long passed freely in commerce. The weight of the 13-X and related counterfeit varieties was essentially equivalent to the Spanish-American 1-*real* pieces used in both cities, and the counterfeits might have been intended to circulate at a value of 1-*real* in one or both of those locations.

A Circulating Counterfeit Overstrike of Similar Design

Other examples of circulating counterfeits of Massachusetts silver coins in this weight range are known, including extremely rare pieces noted to be directly overstruck on genuine 1-*real* pieces. Two such coins were discovered by Robert Vlack when he catalogued the Stearns Sale, al-

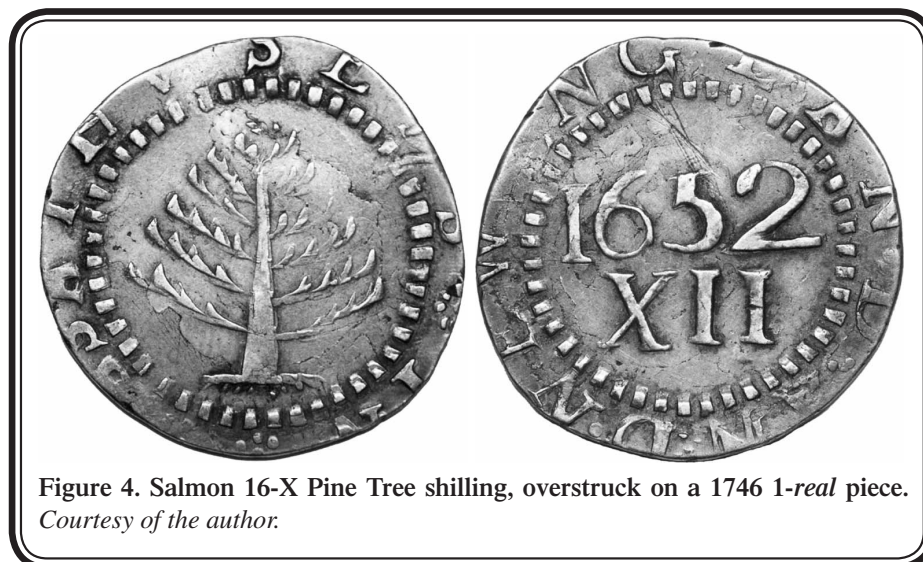


Figure 4. Salmon 16-X Pine Tree shilling, overstruck on a 1746 1-real piece.
Courtesy of the author.

though they were not included in that sale. Gary Trudgen reported these two pieces in *The Colonial Newsletter* in 1984, both having clearly identifiable 1781 Mexican 1-real undertypes (Trudgen 1984, pp. 896–899).

We can now report a third example of this variety, struck with the same dies as the other two known pieces, but with a 1746 1-real underotype (Fig. 4). We have classified this previously uncatalogued variety as the Salmon 16-X Pine Tree shilling.

It is intriguing that these 16-X overstruck circulating counterfeits are so strongly reminiscent of the 13-X, 14-X, and 15-X Pine Tree shilling circulating counterfeits. They certainly have quite strong stylistic similarity, particularly in their very broad and rapidly tapering trunks and their broadly-curved primary branches with widely-based triangular secondary branches. The shared nature of these design elements and the similarities in lettering strongly imply a link between the 16-X and the 13-X, 14-X, and 15-X varieties.

In any case, the 13-X, 14-X, 15-X, and 16-X are far more alike to one another than to any *bona fide* issues of the Massachusetts silver coinage. It is notable, in keeping with the 13-X, 14-X, and 15-X varieties, that the 16-X coins are also struck with dies that are seemingly “too big” for their (in this case, underotype) flans, giving the appearance of having been clipped circumferentially. The 16-X was certainly not clipped, having been struck on full size 1-real coins. The 13-X, 14-X, and 15-X were probably also minted deceptively to give the false aspect of a clipped coin (Salmon 2010, p. 21) in order to make them appear less incriminating and to facilitate their use in commerce.

Similar guileful measures were taken by eighteenth-century English counterfeiters (Selgin 2003, pp. 495–496) who sought to increase their profit margins and mask the illicit nature of their products by making their coins appear compromised and worn through prolonged use. This subterfuge was also employed in striking coppers at Machin’s Mills in late 1780s America (Bowers 2009, pp. 84 and 221–229). Machin’s Mills also sometimes employed overstriking as a means to decrease their production costs (Mossman 1993, p. 189). Such economic considerations may have prompted the counterfeiters of the 16-X Pine Tree shilling to produce the coins by overstriking 1-real pieces (presumably during the same time period as evidenced by the two known 1781 undertypes).

Interestingly, Trudgen averred in his original article on the variety that the 16-X Pine Tree shilling was actually struck by Machin's Mills (Trudgen 1984, pp. 896–899). He cited testimony from Machin's son (who would have been under five years of age at the time the Mills were operational) that the minting partnership "coined mostly copper, but also a little silver." Unfortunately, he could find no additional supportive evidence—aside from the absence of "claims of silver coinage by other state coinage firms"—and there is room for doubt about his attribution. There are no design features of the 16-X Pine Tree shilling to stylistically link it to the copper coinage of Machin's Mills. The known copper issues cannot, of course, be punch-linked to the hand-engraved characters of the 16-X dies. No varieties of silver coinage are otherwise known from Machin's Mills or ascribed to that establishment.

The penalty for counterfeiting precious metal coins in the 1780s was death. This Draconian prohibition should have deterred quite effectively a larger and otherwise highly active and functional minting operation based in the United States from producing counterfeits of legal tender (precious metal) coins, especially in relation to the meager profit margin from striking silver pieces in any but the largest numbers (Trudgen 1984, p. 896). Producing them would have been an exceedingly poor business decision. However inconsistently the proscription may have been enforced and punishment meted out—the degree to which counterfeiters actually feared for their lives in the 1780s has been questioned by some (Louis Jordan, personal communication, 2011)—the harshness of the law probably accounts for the exceptional rarity of counterfeit silver from the State coinage era, including the 16-X Pine Tree shilling and apparently related 13-X, 14-X, and 15-X varieties.

There is contemporary documentary evidence of at least an intent by an individual to produce counterfeits of Massachusetts silver coins in the 1780s, though the source does not allow for an explicit link to the 13-X, 14-X, 15-X or 16-X counterfeit Pine Tree shilling varieties. Newman reported a 1784 New York newspaper story describing the arrest of a man named Queen from Sturbridge, Massachusetts, for possessing "utensils for counterfeiting New-England shilling pieces" as well as (reportedly base metal) counterfeits of Spanish-American 8-*reales* pieces dated 1782 (Newman 1998, pp. 267–270).

Further research is needed to trace the origin of the circulating counterfeits of the Massachusetts silver coinage. Perhaps then the relationship between the 13-X, 14-X, and 15-X trio of circulating counterfeits and the late eighteenth-century overstrikes designated 16-X—so similar in design—can be fully established. In the interim, the evidence from the coins themselves speaks strongly, if not compellingly, for a close relationship and common origin for these varieties.

The Technical Advantage of High Silver Content

Finally, the finding of higher than expected silver content as we discovered for the Salmon 13-X Pine Tree shilling could be due, in part, to other factors and may be purposeful rather than accidental. Workers in silver sometimes prefer using a higher purity silver alloy than sterling for technical reasons.

John Hull and Robert Sanderson, Sr., directors of the seventeenth-century Massachusetts Mint, were silversmiths by training and their non-minting activities occupied the majority of their professional time and attention (Kane 1987, pp. 199–200; Salmon 2010, p. 38). They were, in fact, the first-established and preeminent silversmith practice in British North America in their time, training many fine silversmiths later renowned in their own right (Jordan 2002, pp. 135–139; Kane 1987, pp. 56–58, 68–69, 97–99, 105–106, 113–123, and 200–201; Kane 1998, pp. 47, 567, and 883). Furthermore, Hull played important roles in the civic affairs of the Massachusetts Bay Colony and amassed great wealth through international trade (Jordan 2002,

pp. 131–132; Kane 1987, 69–70; Kane 1998, pp. 568–569; Salmon 2010, pp. 70–71). Sanderson is rightly credited with greater involvement in the day-to-day activities of the combined silversmithing practice and mint than Hull (Jordan 2002, p. 132–135; Kane 1987, p. 199; Kane 1998, pp. 568 and 882–883), though he too held civic office and had outside business interests (Kane 1998, p. 883).

John Hull's earliest known work is also the only piece to bear his touchmark alone (i.e., without that of Robert Sanderson, Sr.), since it dates to about 1650, two years before the Hull and Sanderson partnership and Massachusetts Mint were established (Kane 1998, pp. 46 and 569). It is an example of a type of cup called a "tunn" in seventeenth-century New England idiom and is the earliest known example of Boston silver in any form. The vessel is somewhat thick-walled and less finely wrought than the master's later works and has silver fineness of about sterling, or 925 parts per thousand. The sides of the tunn had respective finenesses of 91.7% and 92.6% and the base about 93.2% (Kane 1987, p. 408).

The remainder of Hull's surviving work bears his mark along with Sanderson's and has silver content of approximately 95%, with a range of about 93.0–97.5%. Patricia Kane, Curator of American Decorative Arts at Yale University Art Gallery and foremost expert on the works of Hull and Sanderson, suggests that this higher silver content—found in virtually all of their collaborative output—was chosen by them intentionally, since the finer mixture was more malleable and easier to work (Kane 1987, p. 32).

It is possible that the counterfeiters who produced the Salmon 13-X Pine Tree shilling may have chosen a rich silver alloy for its greater softness and pliability. The softness arising from the high proportion of silver might also have contributed to the low condition grade and overall compromise of nearly all surviving specimens of this rare and remarkable variety.

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Philip L. Mossman generously provided invaluable insight and apposite historical details on counterfeiting in the Colonial and Confederation Periods—including information that will appear in his forthcoming work on colonial counterfeiting—and closely reviewed the evolving manuscript, making many suggestions throughout the writing process that greatly improved the composition and content of the discussion.

Louis Jordan graciously reviewed the manuscript and offered important and valuable historical perspectives.

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Survey of Flip-Over Double-Struck New Jersey Coppers

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Introduction

Errors in the New Jersey colonial copper series are relatively rare. When they do occur, the most common errors include double strikes, planchet-cutter marks, and off-center strikes.¹ Found on a much less frequent basis are brockages, laminations, and flip-over double strikes (FODS).² Due to the rarity of FODS, an illustrated discussion of their identification and manner of production seemed worthwhile.

Production of a FODS

A FODS is any coin that, during the minting process, is struck once and then restruck between the same dies, but with the planchet flipped over, so that the original obverse is restruck by the reverse die and vice versa. Variations in the sequence of production can occur. For example, the minter, noticing a very weak or poorly centered first strike, might place the coin between the dies again for restriking, but flip the planchet in the process. In this case only the faint remnant of the initial strike will be visible beneath the more prominent second strike. Alternatively, the first minting strike may have been well centered and well struck, but the planchet was accidentally flipped and a second strike was made before it was removed from the coining press. After the second strike, the legends and devices would appear over the first strike on both sides of the coin. Sometimes the coin might have been flipped accidentally in the coining press, but the minter continued to feed in another planchet between the dies. In this case the second strike would leave evidence on only one side of the coin. Because of the complex minting sequences required to produce a FODS coin, one can understand their relative rarity.

Nomenclature

Depending on the circumstances of production, the first or second strike of a FODS might leave the greatest detail on the finished coin.³ Because of the difficulty that may sometimes arise in distinguishing the first and second strike, the authors have elected to describe the most detailed strike on obverse and reverse—no matter whether it was the first or the second strike—as the “prominent strike” throughout the paper. The lesser strike reproducing only some details of the die is called the “remnant strike.”

¹ Mossman 2003.

² Moore and Mossman 2006; Moore 2004.

³ Evidence for a prominent first strike with a light (remnant) second strike is provided by a Machin's Mills counterfeit halfpenny that was lightly overstruck with the types of a New Jersey copper. This coin was sold as the only known overstruck New Jersey (Stack's, Americana Sale, Jan. 2010, lot 4430), but after intensive study by Don Hartman, Raymond Williams, and Roger Moore, it was concluded that the coin is a Machin's Mills piece overstruck with New Jersey dies. This specimen raises the possibility that some FODS could have been produced with a prominent first strike and a light (remnant) second strike.

Differentiation from other Errors

Clashed Dies

It is important to distinguish the abnormal appearance of a coin created by die clashing from that produced by flip-over double striking. Clashing occurs when an obverse and reverse die strike each other without a planchet between them. This event causes portions of the legends and devices to become impressed from one die onto the other. A coin that is then struck from clashed dies may show elements of the obverse die on the coin's reverse and elements of the reverse die on the coin's obverse, thereby mimicking the appearance of some FODS. If only one die has been impressed with the opposing die during a clash, elements of the clashing die will be found on only one side of the finished coin.

Distinguishing a coin produced from clashed dies from a FODS is relatively easy. One important method is to evaluate the axis relationships of the strikes. First, the obverse to reverse axis relationship of the prominent strike should be made.⁴ Then, the axis of the remnant strike on one side of the coin should be measured in relationship to the prominent strike on the opposite side of the coin. Clashed dies will produce remnant strikes of one die against the other with the same axis as that of the prominent strike. In other words, if the original dies are oriented at 180 degrees to each other (coin turn) then the clashed dies will also be at exactly 180 degrees. In addition, the original obverse strike would be placed in exactly the same position on the reverse—if one could see through the coin, the two obverse and two reverse impressions would coincide. A FODS coin, on the other hand, is most likely to have been placed back between the dies in a random manner after the first strike. Therefore, the orientation of remnant strikes may differ significantly from the axis of the prominent strike.

Clashed die impressions are also distinguishable from FODS in that they are mirror images of the original design orientation. Dies are engraved with the mirror image of what appears on the finished coin. Since the clashing of one die against the other causes the die(s) to receive an impression with the same orientation as that of a finished coin, when this impression is then transferred to a planchet, the final image will be reversed (as on the original die). Such clashed die impressions will also reverse the expected incuse and raised parts of the devices and legends (again as on the original die). FODS, on the other hand display remnant elements with appropriately incuse or raised features. However, when coins are very low grade, it may be difficult to distinguish the reversed and incuse image caused by a clashed die from the remnant strike of a FODS.

It should be noted that a die clash permanently disfigures the die—unless the die is later lapped to eliminate the clashing. Therefore, other coins of the same variety, struck after the clashing event, should be found with the same remnant elements in the same places. The absence of other similar coins of the same variety with remnants in the same positions tends to suggest that particular coins with remnant elements are FODS rather than the products of clashed dies.

Die clashing is primarily visible in the fields of the coin and not in the raised areas, while remnant elements can appear anywhere on a FODS.

One final piece of evidence may help to distinguish a FODS from a coin produced from a clashed die is the diameter of the coin. Due to multiple striking, a FODS is likely to have a larger diameter than a typical coin struck once by a clashed die. However, diameters of the same New Jersey copper variety can vary widely, so a broad planchet diameter can only serve as indirect evidence. Likewise, the expansion of the planchet caused by the second strike during the pro-

⁴ Moore 1995.

duction of a FODS may not be especially large. It has been shown that greater planchet expansion is caused by brockage strikes.⁵ In the case of a FODS, the metal of the planchet flows into the incuse portions of the die and therefore does not serve to expand the diameter of the coin by much. Conversely, brockages have significantly larger diameters because the coin stuck to the die makes an incuse impression of the coin devices onto the planchet. This process pushes the metal of the planchet outward and causes the diameter to expand.

Post-Minting Damage/Imprinting

Residual design elements may be impressed onto a coin's surface after production when one coin is smashed against another. However, in this instance, as with coins produced from clashed dies, the orientation of the remnant elements will be reversed and incuse, in contrast to a true FODS, which exhibits the proper right-left orientation and has raised devices. In addition, post-minting damage would create remnant elements only on top of the original strike. Differentiating between such damage and a FODS would be difficult only when few remnant elements are present or the coin is of low grade.

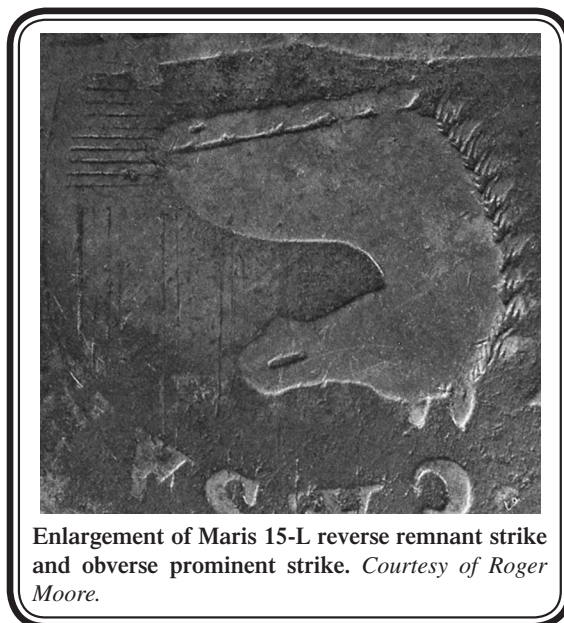
Overstriking on a New Jersey Copper

Perhaps the most problematic is distinguishing between a true FODS and New Jersey types struck over a previously minted New Jersey copper serving as the planchet. It is helpful that such overstrikes are extremely rare. Certainly there are a few varieties with known New Jersey copper undertypes, such as the Maris 34-V, and 35-J, but even these are exceptionally rare.⁶ The difficulty in trying to rule out a FODS from an overstruck New Jersey copper is that they can look very similar. The axis relationships, the orientation of devices and legends, the spread flan caused by multiple strikes of the coin are all potentially the same. The only sure way to distinguish an overstruck New Jersey copper from a FODS is by determining whether the under-type is a different variety than the overstruck coin. Although FODS are rare, overstruck New Jersey coppers are even rarer.

Known Examples of New Jersey Copper Flip-Over Double Strikes

The following survey describes and illustrates nine New Jersey copper FODS that were personally inspected by the authors. Six additional coins sold at auction as FODS, but which the authors have not physically examined, are described separately.

Maris 15-L (Plate 1, coin A)—The coin weighs 141.8 grains and has a diameter of 28.6 mm. The axis of the prominent strike is 178 degrees. When the visible shield details of the remnant strike found on the obverse are compared with the prominent strike shield orientation on the coin's reverse, an axis of 189 degrees is found. This specimen is well circulated and the prominent strike Maris 15 obverse is centered on the planchet.



Enlargement of Maris 15-L reverse remnant strike and obverse prominent strike. *Courtesy of Roger Moore.*

⁵ Ish 1998.

⁶ Mossman 1994, pp. 271–272.

The remnant strike reverse, which appears on the coin's obverse, seems to be off center by about 10%. A great deal of the shield detail from the remnant strike is present. Some of the azure lines of the remnant strike show on top of the coulters of the prominent strike (see enlargement). In addition the dot in front of the prominent strike's C in CAESAREA is actually a detail of the remnant strike which occurs after UNUM on the Maris L reverse. The reverse of the prominent strike has some doubling, which gives the azure and pale lines an odd appearance. Evidence of the remnant strike exists with the plow handles showing just to the right of the upper point of the shield and the letters NOV to the right of the shield. This coin was previously owned by Marcus Mayhugh, but now resides in the Roger Moore collection.

Maris 15-U (Plate 1, coin B)—The coin weighs 139.1 grains and has a diameter of 28.4 millimeters. The axis of the prominent strike is 180 degrees. When the remains of the shield from the remnant strike on the obverse are compared with the prominent strike shield orientation on the coin's reverse, an axis of 230 degrees is found. This high grade coin has the Maris 15 obverse well centered on the planchet. The reverse of the remnant strike also seems to be well centered. Much of the remnant strike shield details are evident on the coin's obverse and extend over the plow. The azure and pale lines as well as the shield edge are all quite evident (see enlargement). The Maris U reverse also shows some evidence of the remnant strike above the shield of the prominent strike which corresponds to the plow. The coin presently resides in the Roger Siboni collection with a pedigree that includes William Anton III and Abe Slopach.



Enlargement of Maris 15-U reverse remnant strike and obverse prominent strike. Courtesy of Roger Siboni.

Maris 28-L (Plate 1, coin C)—The coin weighs 142.9 grains and has a diameter of 28.2 mm. The axis of the primary strike is 191 degrees. When the shield elements from the remnant strike on the obverse are compared with the prominent strike shield orientation on the coin's reverse, an axis of 40 degrees is found. The coin is worn, and displays gouges and environmental damage, including a large dent that extends from the plowshare up to the horse's chest. The prominent strike Maris 28 obverse is centered on the planchet. The shield reverse type of the remnant strike includes much detail. Some of the azure lines overlap the horse's mane, the scroll, and the plow (see enlargement). This overlap gives the impression that the prominent strike was lightly overstruck by the remnant strike. The word UNUM of the remnant strike also appears to the left of the horse's mane. The reverse of the prominent strike has a bulge corresponding to the dent on the obverse. The low grade of the coin makes evaluation of the reverse



Enlargement of Maris 28-L reverse remnant strike and obverse prominent strike. Courtesy of Roger Moore.

problematic, but the letter A seems to be visible just to the left of the shield. Based on its position, this could be the last A of CÆSAREA from the remnant strike. There is also some evidence of the exergual line of the remnant strike in the lower right portion of the shield. The coin was previously owned by Marcus Mayhugh, but now resides in the Roger Moore collection.

Maris 38-Y (Plate 2, coin D)—The coin weighs 150.6 grains and has a diameter of 28.0 mm. The axis of the prominent strike is 172 degrees. When the plow from the remnant strike on the reverse is compared with the prominent strike plow orientation on the coin's obverse, an axis of 140 degrees is found. The coin is worn and exhibits a poorly centered Maris 38 obverse that is off the planchet by some 10%. The remnant strike reverse appears on the coin's obverse only as portions of the legend to the right of the horse's head and outside of the prominent strike's legend. The remnant strike also seems to be off center by some 5%. Behind and above the horse's head outside the prominent strike's legend are parts of the remnant strike legend. The Maris Y reverse of the prominent strike is in a basal state and the shield can be observed and identified only with proper tilting and lighting. The plow handles and exergual line are the primary features of the remnant strike reverse (see enlargement). This coin was sold at auction as a FODS in 1977. The catalog described the unplated coin as "Double-struck (flip over). Plow under shield on Reverse. Photographed and written up years ago in *Coin World*, ex. J. J. Teaparty."⁷ It was resold as lot 1042 in the R. M. Smythe auction of September 18, 1995. The coin now resides in the Roger Moore collection.



Enlargement of Maris 38-Y obverse remnant strike and reverse prominent strike. *Courtesy of Roger Moore.*

Maris 38-Y (Plate 2, coin E)—This second Maris 38-Y specimen weighs 140.9 grains and has a diameter of 28.8 mm. The axis of the prominent strike is 171 degrees. When the shield elements of the remnant strike on the obverse are compared with the prominent strike shield orientation of the coin's reverse, an axis of 165 degrees is found. The coin is worn and features a Maris 38 obverse that is off center by about 10%. The remnant strike reverse on the coin's obverse seems to be off center by almost 30%. Many details of the shield remnant strike are present. Some of the pale lines overlap the horse's head and chest, while some of the azure lines overlap the plow of the prominent strike (see enlargement). In evaluating the shield of the prominent strike's reverse, the width of the lowest azure line measures 13.6 mm. However, the remnant strike shield measures at least 15.9 mm at the lowest azure line. This wider shield would have to be explained by a significant spreading of the metal



Enlargement of Maris 38-Y reverse remnant strike and obverse prominent strike. *Courtesy of Roger Moore.*

⁷ Kagan's Numismatic Auctions, ANA Convention Auction Sale, August 23–27, 1977, lot 111.

as a result of the second strike, thereby making the shield of the remnant strike wider. However, the planchet is not appreciably wider than normal, making this explanation open to doubt. As an alternate explanation, the wider shield might have occurred through the doubling of the remnant strike. Doubled shields side by side might give the impression of a single larger shield. Problematic for this theory is the fact that the pale lines of the remnant strike shield seem to be well oriented and give no evidence of a second set. It may be that this coin is not a true FODS after all, but represents an extremely rare overstrike of one New Jersey copper variety over another. Still, it is difficult to be sure about this possibility as significant portions of the remnant strike's shield are obscure. Another concern is that the detail of the remnant strike shield is better than the prominent strike shield in places. This may indicate that the remnant strike was not made with the same bulging die as the prominent strike shield, although the extensive wear of the prominent strike shield may account for the difference. Clashed dies cannot have been responsible for this remnant strike shield, since it is a middle die state of the Maris 38 obverse and late die state Maris 38 obverses do not show evidence of clashing. The second set of denticles on the reverse are most likely from the remnant strike. These denticles are smaller than those of the Y reverse but could correspond to those of the Maris 38 obverse, thereby supporting the identification of this coin as a FODS. The positioning of the denticles suggests the possibility of overlapping, which would indicate that the remnant strike was doubled. This coin was originally owned by Marcus Mayhugh, but now resides in the Roger Moore collection.

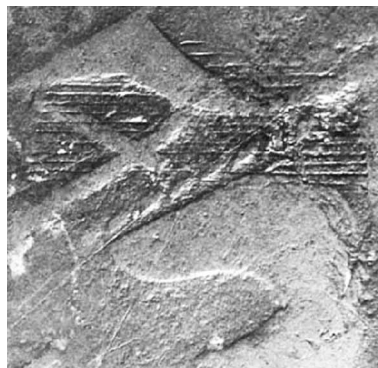
Maris 62-q (Plate 2, coin F)—The coin weighs 132.4 grains and has a diameter of 33 mm. This is the largest diameter known for a New Jersey copper. The axis of the prominent strike is 182 degrees. When the features of the remnant strike's reverse, which appears on the prominent strike obverse, are compared with the prominent strike reverse orientation, an axis of 163 degrees is found. The coin is complicated by the doubling of the prominent strike. The prominent strike is fairly well centered but the double strike is some 35% off center. The remnant strike seems to be fairly well centered, but the limited visible features make it difficult to determine the axis with much accuracy. It would seem that the lines just in front of the horse's chest are the azure lines from the shield, while some of the pale lines intersect with the horse's snout (see enlargement). The off-center double strike on both the obverse and reverse of the coin makes an evaluation even more problematic. The multiple striking by the prominent strike (at least three times), and by the remnant strike are at least partly responsible for the extremely large diameter of the planchet. Alternatively, it is possible that the design elements attributed to the remnant strike could be due to a brockage instead. A brockage strike produces a larger planchet size than a FODS.⁸ Therefore, a brockage strike followed by two regular strikes might account for the exceptionally wide planchet. However, the axis of the remnant strike shield in relationship to the prominent strike shield makes a brockage improbable, unless the possible elements of a second shield on the obverse behind the horse's head actually represent a brockage. It is difficult to come to clear conclusions about this coin in light of the multiple strikes (at least four) used to create it. No clear evidence of the remnant strike is visible on the reverse. The coin was originally owned by Dennis Wierzb, but now resides in the Raymond Williams collection.

⁸ Ish 1998.



Enlargement of Maris 62-q reverse remnant strike and obverse prominent strike. Courtesy of Raymond Williams.

Maris 66-u (Plate 3, coin G)—The coin weighs 135.9 grains and has a diameter of 29.9 mm. The axis of the prominent strike is 185 degrees. When the remains of the reverse from the remnant strike on the obverse are compared with the prominent strike reverse orientation on the coin's obverse, an axis of 190 degrees is found. The prominent strike appears to be off center by only 5%, while the remnant strike seems to be properly centered. Since the axis of the prominent strike and the remnant strike are similar, the remnant strikes might be attributed to clashed dies. If die clashing was the cause, one would expect to see evidence of the clashed dies on other coins. Unfortunately, the extreme rarity of Maris 66-u makes it impossible to entirely rule out die clashing. However, shield lines of the remnant strike are apparent on the back of the horse's neck, on the scroll, and on the plow of the prominent strike (see enlargement). In light of these features, the authors feel comfortable in identifying the coin as a FODS. The only evidence of the remnant strike on the coin's reverse is the clear set of denticles lying outside of the prominent strike denticles on the left edge of the reverse. The coin, which has a pedigree including Mike Weirzba, Richard Picker, T. Harrison Garrett, and Edward Maris, now resides in the Michael Demling collection.



Enlargement of Maris 66-u reverse remnant strike and obverse prominent strike. Courtesy of Michael Demling.

Maris 67-v (Plate 3, coin H) —The coin weighs 153.4 grains and has a diameter of 29.6 mm. The axis of the primary strike is 181 degrees. When the plow features from the remnant strike on the reverse are compared with the prominent strike plow orientation on the obverse, an axis of 145 degrees is found. The prominent strike is about 5% off center, as is the remnant strike. The coin features a high grade Maris 67 obverse, but is peculiar in that two elements of the plow can be seen in different parts of the lower right portion of the prominent strike obverse. However, both of these partial plows are incuse in areas that should be raised (see enlargement). This indicates that they were produced by a brockage double strike. This occurred when another coin that had already been struck became partially wedged between the die and this coin's obverse and was struck at least two additional times. Because the raised portion of the plow on the extra coin acted as a die, the raised portions produced incuse images of the plow on the struck coin's surface. There is no obvious evidence of the shield or legends from the



Enlargements of Maris 67-v obverse with incuse plow from brockage strike and remnant strike obverse on prominent strike reverse. Courtesy of Roger Moore.

remnant strike on the obverse. The Maris v reverse of the prominent strike is also high grade and nicely shows details of the remnant strike (see enlargement). In addition to the obvious plow handles and exergual line above the shield, most of the plow can be traced as well. Within the pale lines, the horse's snout and nostril can also be discerned. This was purchased from a Heritage auction house fixed price list and now resides in the Roger Moore collection. It was originally encased in a slab with a label that read, "1788 Head Right New Jersey, XF Details, Environmental damage."

Maris Double d-d Reverse (Plate 3, coin I)—The coin weighs 153.1 grains and has a diameter of 28 mm. The axis of two shields to each other is 260 degrees. Technically this coin is a FODS since it was struck with a die, flipped over, and then struck again. However, it varies from the typical FODS in that only one die seems to have made an impression during each strike in the minting process. For some unknown reason the obverse die did not come into contact with the planchet during either strike. Whether this was intentional (most likely in the authors' minds) or accidental (a possibility proposed by the owner), cannot be determined. The owner's meticulous evaluation of the minting process and the sequence of events leading to the coin's production is highly recommended to interested readers.⁹ The coin was sold in the Bowers & Merena's auction of the Saccone collection in November 1989 as lot 1611. It is described as "Flip double-struck. Rarity-7+. 153.1 grains. VF-30/30. Dark olive brown, with lighter brown high points. Old marks in the horizontal lines of the shield on both sides; minor planchet cutter clip above RI on one. Rare New Jersey error." The coin also appeared as lot 981 in the Stack's auction of June 1997. The coin, which has a pedigree including Anthony Terranova and Frank Saccone, now resides in the collection of Buell Ish.

Additional Coins

Maris 15-T—The coin is listed and plated in the McCawley-Grellman sale of the Scott Barnes collection, where it is described as "FLIP OVER DOUBLE STRIKE VG10 140.1 gns. An important error making this coin much rarer than the variety rating would otherwise indicate. This coin last appeared as lot 992 in Stack's 1/93 Sale where it was said "(Rarity 7 for this error on this variety)... Errors in the obverse 15 family are extremely rare. Besides the obverse overstrike that leaves a clear horizontal impression of the T reverse below it at the center, the reverse seems to have been struck over a brockage of the T reverse, again most visible at the center. We have not seen another coin like it. There is a rough patch with verdigris at the C of the obverse legend and another smaller one within the plow. Otherwise, both sides are smooth. The coin is toned a mid-olive brown with some tan highlights, more so on the reverse. The obverse is poorly struck along the right side."¹⁰ The present location of this coin is unknown to the authors.

Maris 15-U—Listed and plated in Bowers and Merena sale of 1984.¹¹ The coin is described as "Double-struck mint error. 123.7 grains. Very Good to Fine. As a die variety, this is a duplicate of the proceeding [lot 3146]. However, it takes on an added dimension of interest as a mint error. The coin was struck once, then flipped over in the dies and was struck again. Portions of the reverse shield are thus seen on the obverse, in a horizontal position, in front of the horse. Interesting ...and rare. From Norman Pullen." The present location of this coin is unknown to the authors.

Maris 36-J—The obverse was originally identified as a Maris 82 by Edward Maris himself. He described it as "No. 82. – A small head and only part of the plow and legend can be seen. Both

⁹ Ish 1998.

¹⁰ McCawley and Grellman Auction, Scott Barnes sale, October 12, 1996, lot 11.

¹¹ Bowers and Merena Auction, Dodson, Collier and Sherr, June 19–21, 1984, lot 3147.

sides appear to have been struck from the same die.”¹² Maris did not provide a designation for the reverse. The coin was later catalogued in the 1980 Bowers & Ruddy sale of the Garrett collection. It was described as “Maris 82-hh. 127.4 grains. From the Maris Collection sale, 1886, Lot 497. Dr. Maris considered it to be a circulating counterfeit and believed it to be unique, since it has the horse’s head and plow on both sides. However, later students of this series have concluded that it is a mistriking of Maris 36-J.... Richard Picker and the cataloguer both have come to the same conclusion and feel that after the first normal striking the coin flipped over in the dies and was struck again after a blank planchet was introduced between the dies. This would account for the obverse on each side as well as other inconsistencies.”¹³ The coin is plated in the sale catalog, but its present location is unknown to authors.

Maris 39-a—Listed but not plated in the 1977 Kagin ANA sale, where it is described as “A beautiful triple strike, reverse clearly shows 2 shields, 3rd shield on obverse when coin flipped over. A magnificent coin, about uncirculated. No records significant for comparison. Museum quality, ex. Dr. Smith.”¹⁴ As in the case of Maris d-d (see above, p. 3755) there is only evidence of a single die used on both sides. The present location of this coin is unknown to the authors.

Maris 46-e—Listed and plated in the 1977 Kagin ANA sale, where it is described as “A coin for the specialist. Complete flip over double strike. Coin has a shield and a horse’s head on each side. Looks like the horse is riding the shield, Very Good, Spiro-Schulman Sale 3/19/55 lot 1554.”¹⁵ This coin reappeared and was plated in the 1996 McCawley-Grellman sale. Here it was described as “FLIP OVER Double-struck VG8 149.2 gns. Grading is no more than an approximation, though the detail that still shows is fascinating. Smooth and reflective contrasting dark brown and tan. Each side shows a nearly even mix from both dies, with the horse head inverted on the shield and vice versa, and with legends from both sides clearly present on each. This coin was lot 3163 from B&M’s 9/95 sale.”¹⁶ The present location of this coin is unknown to authors.

Maris 55-m—Listed and plated in the 1977 Kagin ANA sale, where it is described as “A flip over double strike. Knobbed handles and NOVA on reverse and reverse shield struck on horse’s head, over all about fine. Ex. Stacks stock.”¹⁷ The present location of this coin is unknown to the authors.

Conclusion

Although an exhaustive search through all previous auction catalogs was not performed, the 15 coins listed here probably account for the great majority of New Jersey FODS that have been available to collectors in the last few decades. Of these coins, nine have been physically inspected by the authors. Of those inspected, there remains some question as to whether the Moore 38-Y specimen might be struck over some other New Jersey copper and whether the Williams multistruck 62-q might actually be the product of a brockage rather than a true FODS. Assuming that both of these coins are indeed FODS, then four of the known FODS have a Maris 15 obverse and two have a Maris U reverse. This would imply a remarkably high error rate of this type by the minters of the Maris 15 coinage and might tend to suggest that the minters responsible for this variety were more careless than others. The two Maris 38-Y examples would increase the number of recorded New Jersey FODS occurring with two distinct obverses to six.

¹² Maris 1881, p. 17.

¹³ Bowers & Ruddy Galleries, The Garrett Collection Sales, Sale 3, October 1–2, 1980, lot 1486.

¹⁴ Kagin’s Numismatic Auctions, ANA Convention Auction Sale, August 23–27, 1977, lot 112.

¹⁵ Kagin’s Numismatic Auctions, ANA Convention Auction Sale, August 23–27, 1977, lot 116.

¹⁶ McCawley and Grellman Auction, Scott Barnes sale, October 12, 1996, lot 387.

¹⁷ Kagin’s Numismatic Auctions, ANA Convention Auction Sale, August 23–27, 1977, lot 119.

Metrological evaluation of the nine coins directly studied reveals an average weight of 143.3 grains with a range of 132.4 to 153.4 grains. Considering that the authorized weight of New Jersey coppers was 150 grains, it would seem that FODS did not fall much short of the expected weight.¹⁸ At least no extremely low weight or contemporary counterfeits exist in the grouping of FODS. This would indicate that these error coins were produced in the course of routine official minting. Evidently, some minters were more careless than others. The average diameter of the nine coins is 29.2 mm with a range of 28 to 33 mm. Therefore the diameters were all on the high side for New Jersey coppers with an exceptionally large planchet found with the 62-q. The larger planchet diameters are easily explained by the multiple striking of each coin. Although spread planchets are more evident among brockage strikes, some diameter expansion is expected with a flip-over double strike.¹⁹ Many of the coins inspected had evidence of additional strikes. The greater the number of strikes of whatever type (double, flip-over double, or brockage), the greater the expansion of the diameter that would be expected.

Of the nine coins physically inspected, the average axis of the primary strike was 180 degrees, or perfect coin turn, with a range of 171 to 191 degrees. The relationship of the prominent strike axis of the coin to the remnant strike features was 169.1 degrees on average, with a range of 40 to 230 degrees. Obviously the variation in prominent strike to remnant strike axis is very wide, but not unexpected, since when the coin flips over and is struck again, it most likely would not have the same alignment as the first strike.

Evidence of the flip-over double strike is typically present on both the obverse and the reverse of the coin—but not always. Out of the eight coins physically evaluated (the Maris d-d is excluded since no evidence of an obverse die is present), six showed some evidence of the remnant strike on both sides of the coin. However, two of the eight lacked a visible remnant strike on one side. In the case of the Maris 67-v, there is good evidence that another minted coin prevented the remnant strike's reverse die from imprinting on the coin's surface. However, in this case the "protecting" coin created a brockage of two incuse plow handles on the prominent strike obverse.

One final observation is that the majority of the evaluated FODS coins had their prominent strike somewhat off center. The incidence of off-center strikes in the general New Jersey copper population is unknown to the authors, so a high rate of off-center strikes may be the rule. If not, then some consideration should be given to the potential role that an initial off-center strike might have had in the process leading to the creation of a FODS coin.

The authors would be grateful to the readership for assistance in locating the six coins that were not physically inspected. In addition, any information about other New Jersey coppers exhibiting the rare FODS error would be greatly appreciated.

Acknowledgements

The authors would like to thank Michael Demling, Jack Howes, Buell Ish, Roger Siboni, and Raymond Williams for providing photos and information about their FODS coins and for cogent discourse concerning the manufacture of these coins. Buell Ish and Raymond Williams also deserve special thanks for their proofreading of the article and their excellent suggestions for improvement. Finally the excellent editorial input from Oliver Hoover must be acknowledged.

¹⁸ Mossman 1993, pp. 271–272.

¹⁹ Ish 1998.

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PLATE 1



A
Maris 15-L



B
Maris 15-U



C
Maris 28-L

PLATE 2



D
Maris 38-Y



E
Maris 38-Y



F
Maris 62-q

PLATE 3



G
Maris 66-u



H
Maris 67-v



I
Maris d-d

Swollen Jowls: A Family of Counterfeit Halfpence

by
Roger A. Moore, MD; Moorestown, NJ

Introduction

British and Irish counterfeit halfpence and farthings were a relatively uncollected coinage until 1990 when William Anton Jr. and Bruce Kesse brought them to numismatists attention with the publication of *Forgotten Coins of the North American Colonies*.¹ However, even after the appearance of this important work, only a few brave collectors attempted to specialize in the uncharted and complex area of eighteenth-century counterfeits. Notable among these few daring souls were Clement Schettino and Byron Weston, who together provided significant insight into the coinage by categorizing overwhelming numbers of counterfeits into manageable Families.² Further discussion of their methodology can be found in Weston's exploration of "link fingerprinting" and the author's recent treatment of the Lanky Letters Family.³ The best way to associate coins with a particular Family is through shared dies. Lacking common dies, a less rigorous method of relating Family members is through the identification of common punches and stylistic similarities. The purpose of this paper is to explore the so-called Swollen Jowls Family. The discussion that follows is preliminary and refinements will be required as new coins are collected and appear.

The name of the Family is derived from the prominent jowls of King George III, found on the primary (also known as the Head of Household, or HOH) obverse that is paired with all five 1775 reverses—three of which are "style mules" made from dies that are not directly related by style to the Swollen Jowls Family. A further obverse with large jowls, some Swollen Jowls stylistic similarities, and apparent letter-punch sharing is discussed. This is paired with a 1774 dated reverse which belongs to a different "style mule" Family than the 1775 "style mule" Family reverses.

Nomenclature

The members of the Non-Regal Research e-group are in disagreement as to the best way to label coins within a Family and associated mules using dies from outside of the main Family. It has been suggested that a simple alpha-numeric system is the least confusing for the novice. In such a system, the number would indicate the obverse variety and the letter the reverse without the addition of prefixes (i.e., SJ for Swollen Jowls, LL for Lanky Letters, etc.) to identify the larger Family group. The model for this arrangement comes from the state copper coinages, which require no such prefixes for differentiation. A New Jersey copper is readily distinguishable from a Connecticut copper, or a Massachusetts cent and therefore there is no need to precede the die identities with a redundant NJ, CT, or MA.

However, the counterfeit halfpence are not easily distinguishable in the manner of the state coppers. Instead there is a great deal of stylistic cross-over, punch sharing, and repetition of devices and legends across different Families, often making it difficult to securely isolate a coin within a particular Family. Likewise, once a Family has been identified, a simple alpha-numeric designation (i.e., 1-A) would be useless for placing that specific coin in the context of the appropriate Family. At present there are at least 50 identified counterfeit halfpence families, meaning that 1-A could refer to 50 or more distinct varieties. In light of this serious problem, I strongly

1 Anton and Kesse 1990.

2 Schettino *et al.* 2002.

3 Weston 2002; Moore 2010.

feel that the Family designation should be prefixed to the die variety. In spite of the potential redundancy of the proposed system, the value of keeping the Family designation with the coin at all times will greatly reduce any future confusion and misattribution.

The problem of handling mules within a Family is more complex. Typically, when one speaks of a "mule" in regard to counterfeit halfpence, the term refers to an improper pairing of an obverse die with a reverse die based on date. In other words, when a George II obverse is used on a coin that has a reverse dated to the reign of King George III, it is considered a "date mule." Similarly, a King George III obverse should not be paired with a reverse dated prior to 1770, when George III first issued regal halfpence. A second type of mule also occurs in the context of counterfeit Families—the "style mule". The "style mule" is a coin which has had the obverse from one Family paired with a reverse from another. Such "style mules" are difficult to classify by Family. Currently there is no general consensus on how to treat "style mules." It has been suggested that when describing a Family including a "style mule," the side of the mule that is not related to the Family under discussion should not be labeled. Instead it should appear in the plates as an unrelated mule. This is essentially how "style mules" were handled in my paper on the Lanky Letters Family.⁴ However, I found the lack of identification of the non-Family member mule side of the coin to be very unsatisfactory for several reasons: 1) Without identification there is no easy ability to refer to the muled side of a coin in any particular Family; 2) Without identification there is no easy way to identify a die used in multiple Families produced by the same counterfeiting operation; 3) Without identification our ability to trace the potential movement of dies between different minting operations and to understand the interrelationship of counterfeiting operations is seriously hampered.

Considering these problems, I now believe that *both* sides of *every* coin need to be given designations. The "style mule" side of a coin within a Family should still be part of its designation, including the Family into which it is muled. I realize that this may cause some confusion among novice and expert collectors alike, but as Families become better defined, more rigorous labeling is likely to become increasingly important.

I propose using more complex designations, such as those in Figure 4 (below), which depicts Swollen Jowls "style mules." The first reverse mule illustrated, SS-75XX=SJ-75C, can be taken as an example. Here, the first designation refers to the Family in which that side of the coin primarily resides—in this case the Slant Sevens Family which is identified by SS. Since this is a dated reverse, next comes the date (1775), which is indicated by 75. The XX simply means that the location of this reverse within the Slant Sevens Family has not yet been determined since the SS Family has not yet undergone rigorous analysis. When a final determination has been made the "XX" will disappear and the proper reverse letter will be used.

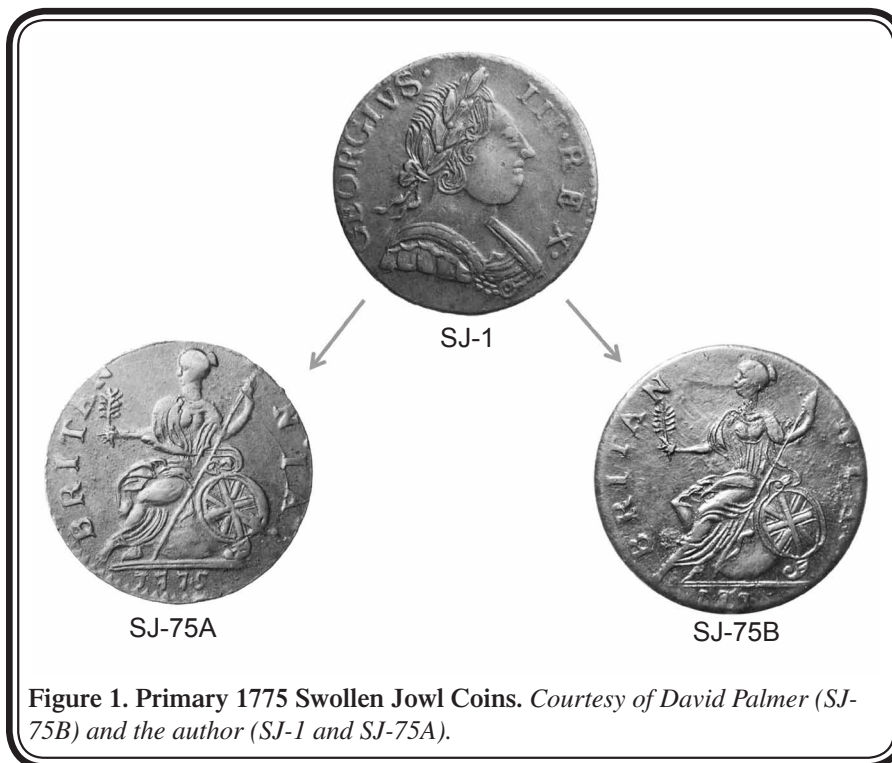
Many of my colleagues in the Non-Regal Research e-group would argue that the designation SS-74XX is enough, if not more than enough, to fully identify the coin. However, I think that when all Families have been defined, full designations for "style muled" coins will be essential for drawing conclusions about the minting operations in which multiple Families were produced. Therefore, I have included a Swollen Jowls designation for each of the "style mules" presented here. In the case under discussion, the equal sign (=) is used to indicate that the SS designation primarily refers the coin, but in the context of the Swollen Jowls (SJ) Family there is a secondary and equivalent designation. The SJ designation follows the same pattern as the core varieties within the SJ Family with the reverse date and an assigned letter for that reverse given as SJ-75C. Put all together one has SS-75XX=SJ-75C in this case. The value of this system is that if the same reverse is eventually found to be used in two or three other Families as a "style mule," the additional Family designations can be added as they are discovered—making

⁴ Moore 2010.

the label unwieldy in the minds of many—but allowing a picture of the cross-minting of Families to be more clearly defined. Time will tell whether this more complex designation system will help or hinder our understanding and appreciation of these coins.

Primary 1775 Swollen Jowls

The core representatives of the Swollen Jowls Family (one obverse and two reverses) appear in Figure 1. The key characteristics of the obverse (SJ-1) are striking and easily recognized. King George III on SJ-1 has an almost comically enlarged jowl, as well as a squinting eye, a prominent pointed nose, and detailed treatment of the hair. The obverse legend also has some interesting features, including Rs, which appear to be made by a P-punch and an additional hand-engraved tail, and Gs made by a C-punch and completed with the addition of what seems to be the top of an I-punch to the lower curve of the C. Although this use of improper letter punches with additions made by hand is widespread throughout the counterfeit halfpence series, it is particularly evident on the SJ-1 obverse.



The two reverses (SJ-75A and SJ-75B) of the core Swollen Jowls Family are also quite dramatic. Both have a feathered sprig, similar to that found in the Lanky Letters counterfeit halfpence Family.⁵ However, other features of the Swollen Jowl reverses are very different from the those of the Lanky Letters Family. For instance, Britannia is squat and long necked, with prominent breasts, and her hair is made up into a bun. The shield on the primary Swollen Jowl reverses is round and prominent. In addition, there are distinctive folds in Britannia's drapery as well as double exergual lines above the date. Just as on the obverse, the Rs in the legend are made from P-punches with the tail added by hand. The numeral 1 in the date is in the J-style on both reverses. Together, all of these elements conspire to give King George III and Britannia a distinctive cartoonish look.

⁵ Moore 2010.



Early Die State



Middle Die State



Late Die State

Figure 2. Die State Progression of SJ-75A. *Courtesy of Marcus Mayhugh (EDS), David Palmer (LDS), and the author (MDS).*

Both of the Swollen Jowls reverses have interesting anomalies. The SJ-75A seems to have broken early since I have not yet found any examples of the reverse without die breaks (Fig. 2). At present, the earliest die state (EDS) includes a die break that extends from the lower, outer edge of the shield to the edge of the coin. The small beginning of a break also appears on the lower left leg of the second A in BRITANNIA. The middle die state (MDS) example shows that the die break in the second A has expanded through the bottom of the second I and continues to curve up under the second N to reach Britannia's left arm. Another die break appears across Britannia's mid-torso and extends along her right arm. In the late die state example (LDS), the die break in the mid-torso area has widened and now extends not only along Britannia's right arm but continues to the bottom of the T in the legend. Another faint break can be seen at the very top of the coin and extending through Britannia's head. No doubt this limited picture of the die's gradual failure will be expanded by further specimens in the future.



Figure 3. Die irregularities on SJ-75B: Anomaly in front of Britannia's head and die break through the first 7 of 1775. *Courtesy of the author.*

A breakdown progression can not yet be reconstructed for the SJ-75B reverse die, but a few anomalies are illustrated in Figure 3. A bulge caused by a clashed die or possibly by a die break appears immediately in front of Britannia's head. A die break is also apparent through the first 7 of the 1775 date.

1775 Swollen Jowls Mules

Figure 4 depicts the core Swollen Jowl Family's single obverse and two reverses and also includes the various "style mules" from other Families that are paired with the primary SJ dies. Particularly interesting is that SJ-1 is paired with two "style mule" reverses from the Slant Sevens Family (SS-75XX=SJ-75C and SS-75XX=SJ-75D) and one "style mule" reverse from the Linear Devices Family (LD-75XX=SJ-75E). The Slant Sevens (SS) name is derived from the slanting 7 numerals in the date. The Linear Devices (LD) name refers to the linear treatment of the portrait of George III and the image of Britannia. Note the thick vertical lines of Britannia's drapery under the bodice. It is notable that the single obverse "style mule" (LD-XX=SJ-B) is also a Linear Devices Family member. Both of the Slant Seven and Linear Devices Families will be the subjects of future papers.

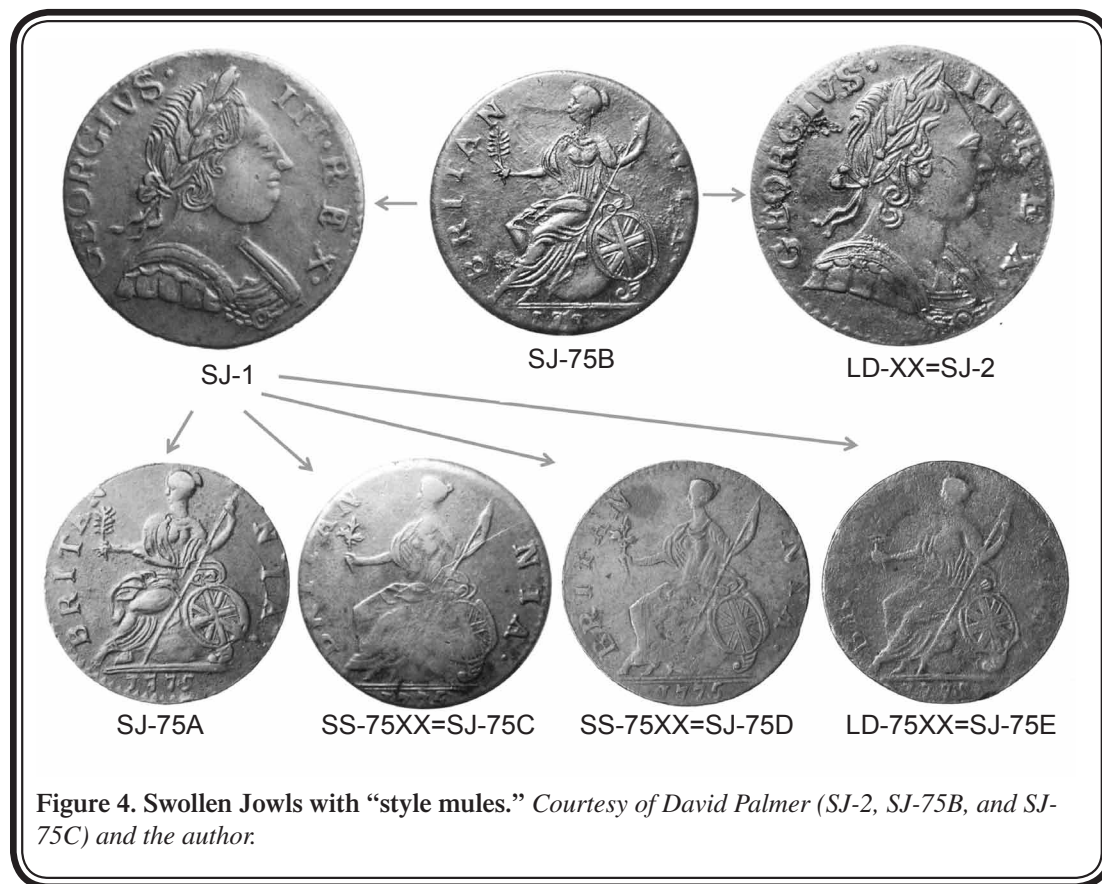


Figure 4. Swollen Jowls with "style mules." *Courtesy of David Palmer (SJ-2, SJ-75B, and SJ-75C) and the author.*

The die state progression can be reconstructed for the "style mule" reverse SS-XX=SJ-75-D (Fig. 5). The early die state is free of die breaks while the late die state has a massive break extending from the 5 in the date up through Britannia's legs and through the legend.

The single obverse "style mule" (LG-XX=SJ-2) is found mated to only one Swollen Jowls reverse (SJ-75B). The fact that both an obverse and a reverse Linear Devices Family die was used to make "style mules" with the Swollen Jowls dies, raises the possibilities that the same counterfeiting operation minted both Families of halfpence or that the dies traveled from one counterfeiting operation to another. The same can be said of two reverse 1775 Slant Sevens dies used to create Swollen Jowls "style mules."



A 1774 Swollen Jowls Mule

One 1774-dated coin has also been included in the Swollen Jowls Family entirely on the basis of obverse characteristics, since the reverse is a non-Swollen Jowls “style mule” (Fig. 6). SJ-3 is included in the Swollen Jowls Family because of its stylistic and punch linkages to SJ-1. The two obverses are compared side by side in Figure 7. Here, one can see the dramatic similarity of the punches used to create the legends on both obverse dies. The same odd R from a P-punch and G from a C-punch appear on both. The E- and S-punches are also the same on both. Lastly, the portrait of King George III is treated in a similar style on both obverses. He is depicted with the same long sloping forehead, puffed lips, and squinting eye. The jowl is not as prominent on SJ-3, but based on the punch linkage of the legends and the style of the portrait, I believe the “Link Fingerprint” relationship described by Byron Weston has been adequately fulfilled here.⁶

It is notable that SJ-3 has a “style mule” reverse that does not correspond to the Linear Devices or Slant Sevens reverses used for the 1775 Swollen Jowls varieties. Based on an analysis by Ed Foster presented in the Non-Regal e-group, the reverse of the 1774 coin should belong to the Topless Ordinal (TO) Family, despite the presence of tops on the ordinal numerals of this specific coin.⁷

My decision to include this 1774 coin in the Swollen Jowls Family has not won universal acceptance. As further research is performed, the designation of this obverse as a member of the Swollen Jowls Family may be changed.

⁶ Weston 2002.

⁷ Ed Foster, personal communication, March, 2010.

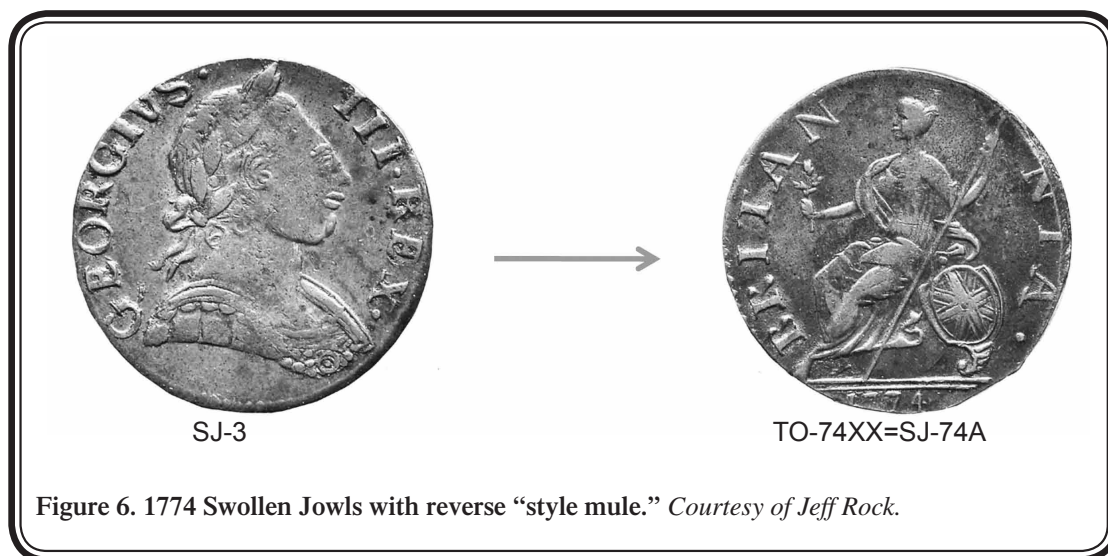


Figure 6. 1774 Swollen Jowls with reverse “style mule.” *Courtesy of Jeff Rock.*

Attribution Guide

The single core coin obverse and two reverses shown in Figure 1 are easily identifiable and distinguishable. Therefore, a full attribution guide is unnecessary for them. The easiest way to tell the two core reverses from one another is that Britannia’s knee is curved on SJ-A, while her knee is sharp on SJ-B. The only real attribution difficulties are posed by the “style mule” reverses. An attribution guide for the 1775 mule reverses is supplied in Chart 1. One can see that the known 1775-reverse “style mules” fall into two different, but possibly related, Families—the Slant Sevens (SS) and the Linear Devices (LD) Families. In Chart 1, the diagnostic characteristics of each reverse die are provided. It is important to note that lower grade coins may be missing key design elements and therefore direct comparison with the coin images in this paper is advised. Close attention to the details of the date and the relationship of the numerals in the date to the exergual line is critical for distinguishing “style mule” reverses.

Metrology

The number of coins available for study in each of the Swollen Jowls varieties was limited. Some varieties have only one or two known examples at this time. Most of the available Swollen Jowl specimens were measured by their owners, who provided the metrological information to the author. A total of 33 Swollen Jowl coins were documented photographically and most had measurements of their diameters in millimeters (30 out of 33), weights in grains (29 out of 33), and axis data (27 out of 33) recorded. Of the 27 coins, both 1774- and 1775-dated, which had axis measurements taken, all were struck to a coin turn orientation. The single weighed 1774-dated coin was 107.1 grains, while the average weight of the 29 1775-dated coins was 97.3 grains (range of 83.3 to 112.7 grains) (see Table 1). The diameter of the 1 measured, 1774-dated coin was 27 millimeters, while the average diameter of the 28 measured, 1775-dated coins was 26.7 millimeters (range 26 to 27.5 millimeters). Considering that the authorized weight and size of regal halfpence was 152.2 grains and 29–30 millimeters, one can see that the Swollen Jowl coinage was significantly under-weight and under-sized, which would be expected if counterfeiters were trying to produce a profit.⁸ Since all coins did not have all measurements taken, in Table 1 there are columns indicating the total number of coins used for each of the specific measurements.

⁸ Mossman 1992, p. 112.



Figure 7. Comparison of SJ-1 and SJ-3. Courtesy of Jeff Rock (SJ-3) and the author (SJ-1).

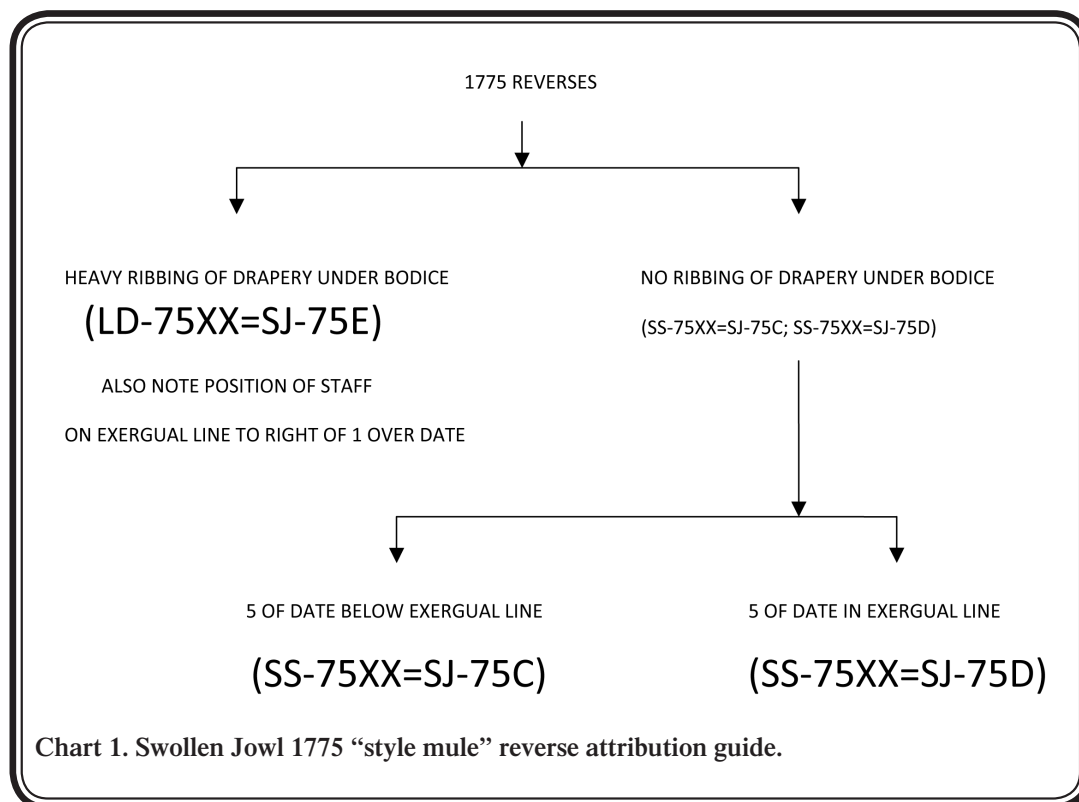
Table 1. Metrological data for the Swollen Jowls Family.

Variety	Avg. Wt.	Wt. Range	Wt. Sample	Avg. Dia.	Dia. Range	Dia. Sample
SJ-1/SJ-75A	90.7	83.3–112.7	11/12	26.6	26–27.2	10/12
SJ-1/SJ-75B	101.5	101.5	1/1	26.6	26.6	1/1
SJ-1/SS-75XX=SJ-75C	109.7	107.3–111.9	3/3	26.5	26.4–26.6	3/3
SJ-1/SS-75XX=SJ-75D	98.4	86–108	7/9	26.7	26–27.5	7/9
SJ-1/LG-75XX=SJ-75E	99.8	98.1–101.6	2/2	27	26.9–27.1	2/2
LD-XX=SJ-2/SJ-75B	101	93.1–110.3	5/5	26.9	26.4–27.4	5/5
SJ-3/TO-74XX=SJ-74A	107.1	107.1	1/1	27	27	1/1

The relative rarity for each die combination of the Swollen Jowls coins can be determined from the total number of coins sampled for each variety in Table 1. It is also interesting to note the differences in planchet weights and diameters, as well as the general consistency of the planchets (indicated by ranges) across die combinations.

Conclusion

The 1775 Swollen Jowls core Family members are quite distinctive and easily identifiable. However, this Family also has many "style mules," indicating that the original dies for the Family were used extensively to counterfeit other coins. Since both obverse and reverse "style mules" occur, one cannot attribute the many cross-Family usages of the dies merely to the breakdown of the die pair and the utilization of the remaining die with whatever other dies were available to the counterfeiting operation. The pairing of two Slant Sevens Family reverses, one Linear Devices Family obverse, and one Linear Devices Family reverse with core Swol-



len Jowls observes and reverses strongly indicates that these dies were made by—or at least found their way into—a counterfeiting operation using dies from other Families. As the inter-relationships of the “style mules” are fleshed out through further research, it is hoped that the common counterfeiting operations will be better revealed to us.

The single 1774 dated Swollen Jowls member (SJ-3) is fascinating. The coin I have identified as part of this group has a Topless Ordinal Family reverse and features indisputable punch and style linkage to SJ-1.

The 33 coins studied for this paper in the Swollen Jowls Family are just a start. Swollen Jowls appear on eBay on a regular basis and there is good reason to suspect that there are other, as yet undocumented, varieties out there, especially mules.

Acknowledgements

Sharing of images and information by members of the internet based Yahoo Colonial-Coin and Non-Regal Research groups has made this paper possible. Special contributors of information, editing, and images included David Palmer, Jeff Rock, Bob Bowser, Ray Williams, Dan Burleson, Ed Foster, John Louis, Michael Briggs, Byron Weston, Steve Frank, Clem Schettino, Marc Mayhugh, Morris Hankins, Mark Varney, Bruce Smith, and Mike Ringo (from previous active participation prior to his unfortunate and untimely death). I will also stress the extraordinary help provided by Ed Foster in making a discovery of the LD style mule from a coin in my collection. The excellent input in editing by Oliver Hoover must also be acknowledged.

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VERMONT COPPERS IN THE COLLECTION OF THE AMERICAN NUMISMATIC SOCIETY

Plate IV: Bust Design, 1788 (Bressett 16-U to 22-U)

by

Oliver D. Hoover; Burlington, Ontario¹

Introduction

The Vermont coppers dated 1788 employ the bust right and seated Britannia types (indicated by the Union Jack on the shield) first introduced in the Summer of 1787. These types more closely imitate contemporary regal (and counterfeit) English halfpence of George III than previous Vermont bust types, which had attempted to copy the popular design of Connecticut coppers. Despite the typological change, the Latin inscriptions of the 1788 Vermont coppers still mimic the Connecticut model. They indicate that the coins were produced "by the authority of Vermont" (VERMONAUCTORI) and celebrate "liberty and independence" (LIB ET INDE or INDE ET LIB).

The dies used to strike late 1787 and 1788 Vermont coppers at the Rupert mint are normally attributed to James Atlee at Machin's Mills in Newburgh, NY, although William Coley may also have been involved in their production. When the legal Vermont mint at Rupert closed in early 1789, its coining equipment was acquired by Machin's Mills. It was used to produce illegal Vermont coppers, often by overstriking lightweight coins (especially counterfeit Irish halfpence) that had been outlawed in New York by a statute of April 20, 1787. All of the coins on this plate are illegal Machin's Mills products. The types of the Irish halfpenny host coins are still visible beneath the Vermont types on two specimens (Nos. 32 and 36). One piece (No. 40) mules a Vermont reverse with a George III obverse intended to be used for counterfeit English halfpence.

The ANS cabinet presently includes some 42 Vermont specimens. These represent many of the major types and die varieties listed in Hillyer Ryder's "The Colonial Coins of Vermont," in *The State Coinages of New England* (New York, 1920), pp. 63–67; John Richardson's "The Copper Coins of Vermont," *The Numismatist* 5 (1947): 331–354; and Kenneth Bressett's "Vermont Copper Coinage," in E. Newman and R. Doty (eds.), *Studies on Money in Early America* (New York, 1976): 173–198. The bulk of the collection derives from a gift made by the estate of Count Alexandre Orlowski in 1979. Alexandre Orlowski, the expatriate son of the Polish Count Miecislav Orlowski, lived in the Vermont towns of Pittsford and Castleton from 1941 to 1968.

Only one coin (No. 34) on this fourth plate in a series to fully publish the Vermont copper collection of the ANS derives from the Orlowski gift. This coin is notable for the script "N. York" counterstamp on the obverse, which has been associated with the New York silversmith John Burger (sole proprietor, 1784–1805). Four pieces (Nos. 31–32, 35, and 38) were donated to the Society by James C. Spilman and the Colonial Newsletter Foundation along with the Barnsley collection of Connecticut coppers in 2005. Two coins (Nos. 33 and 36) were gifts of Charles M. Wormser, the director of the New Netherlands Coin Company from 1940 to 1988. The importance of this firm, which later grew to include John J. Ford and Walter Breen, in the development of the colonial numismatic market and advancing the study of colonial coins cannot be underestimated. In 1911, William P. Beaver donated coin no. 40 to the Society along with some 799 other coins and medals. These included pieces from his own collection as well as from a group pur-

¹ The commentary and catalog have benefited from discussion with Louis Jordan, Philip Mossman, David Palmer, Roger Siboni, and Raymond Williams.

chased from Howland Wood, the ANS Curator from 1913 to 1938. Coin no. 37 was purchased from Mid-American Rare Coin Auctions Inc. in 1984 and no. 39 from C. V. C. Mathews in 1943. Due to a database error, it was previously reported that the ANS currently lacks examples of 18-W. The Society in fact possesses three specimens of this variety. These and two further examples of Bressett 16-U are catalogued and plated here. However, in the sequence from Bressett 18-W to 24-U, the ANS has no examples of Bressett 21-U or 21-Y.

Catalog

Obv. Legend as indicated. Laureate and cuirassed bust right, imitating regal halfpence of George III.

Rev. Legend as indicated. Britannia seated left on globe, holding olive branch and pole; grounded shield with Union Jack; in exergue, 1788.

Bressett 16-U / RR 25

- 31. 27mm, 110.6 grains. VERMON+ AUCTORI on obverse. INDE+ ET LIB+ on reverse. ANS 2005.37.1140.
- 32. 27mm, 106.3 grains. VERMON+ AUCTORI on obverse. INDE+ ET LIB+ on reverse. Hibernia halfpenny undertype visible on obverse. ANS 2005.37.1141.

Bressett 18-W / RR 27

- 33. 27mm, 129.9 grains. VERMON. AUCTORI on obverse. INDE * ET LIB * on reverse. ANS 1944.88.1.
- 34. 27mm, 110.3 grains. VERMON. AUCTORI on obverse. INDE * ET LIB * on reverse. N. York counterstamp on obverse. ANS 1979.124.33.
- 35. 27mm, 102.3 grains. VERMON. AUCTORI on obverse. INDE * ET LIB * on reverse. ANS 2005.37.1212.

Bressett 20-X / RR 35

- 36. 27mm, 82.1 grains. VERMON AUCTORI on obverse. *ET LIB* *INDE on reverse. 1781 Hibernia halfpenny undertypes visible on obverse and reverse. ANS 1951.168.1.

Bressett 22-U / RR 29

- 37. 27mm, 94.7 grains. *VERMON* *AUCTORI* on obverse. INDE+ ET·LIB+ on reverse. ANS 1984.121.1.
- 38. 27mm, 120.2 grains. *VERMON* *AUCTORI* on obverse. INDE+ ET·LIB+ on reverse. ANS 2005.37.1142.

Bressett 23-S / RR 30

- 39. 27mm, 115.5 grains. VERMON* AUCTORI on obverse. INDE ET LIB on reverse. ANS 1943.32.3.

Obv. GEORGIVS · III · REX · Laureate and cuirassed bust of George III right.

Rev. INDE+ ET·LIB+. Britannia seated left on globe, holding olive branch and pole; grounded shield with Union Jack; in exergue, 1788.

Bressett 24-U / RR 31

- 40. 23mm, 110.0 grains. ANS 1919.75.29.

VERMONT COPPERS IN THE COLLECTION OF
THE AMERICAN NUMISMATIC SOCIETY

Plate IV: Bust Design, 1788
(Bressett 16-U to 24-U / RR 25, 27, 29 to 30, and 35)



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CONNECTICUT COPPERS IN THE COLLECTION OF THE AMERICAN NUMISMATIC SOCIETY

Plate IV: 1785

(Miller 4.4-C)

by

Oliver D. Hoover; Burlington, Ontario¹

Introduction

The Confederation period copper coinage of the state of Connecticut was legally struck in New Haven by the Company for Coining Coppers from November 12, 1785, to June 1, 1787. From June 1, 1787, to the Fall of 1788, Connecticut coppers continued to be struck by James Jarvis and Company. The types essentially consisted of modified versions of the royal bust obverse and Britannia reverse familiar from contemporary English halfpence. The Latin regal legends were replaced by new ones that identified the coppers as being issued by the authority of Connecticut (AUCTORI CONNEC) and advertised American independence and liberty (INDE ET LIB). This coinage was popular, spawning imitative issues struck for Vermont and numerous illegal counterfeits. The problem of counterfeiting combined with apparent mint irregularities led to a state inquest in January of 1789. On June 20, 1789, the right to produce state coppers for Connecticut was officially terminated.

The collection of Connecticut coppers maintained by the American Numismatic Society may be one of the most complete in existence and contains the vast majority of the die varieties recorded in Henry C. Miller's *The State Coinage of Connecticut* (New York, 1920). The Society's Connecticut holdings are so extensive due to two major gifts in the early twentieth- and twenty-first centuries. In 1931, the Frederick Canfield collection of Connecticut coppers (285 pieces) was loaned and subsequently donated to the ANS by the New Jersey Historical Society. In 2005, the American Numismatic Society acquired the Connecticut collection of Edward R. Barnsley (1131 pieces) thanks to the generosity of James C. Spilman and the Colonial Newsletter Foundation.

This fourth plate in a series to fully publish the Connecticut coppers in the ANS cabinet consists entirely of the Miller 4.4-C variety. Except for no. 40, all of the illustrated coins come from the Barnsley/CNLF gift. The last coin on the plate lacks a provenance, but bears a painted Miller die variety (PDV) on the obverse. Comparison with painted die varieties on coppers from the Canfield collection tends to suggest that this too may be a Canfield piece.

¹ The commentary and catalog have benefited from discussion with Randy Clark, Louis Jordan, Philip Mossman, and Raymond Williams.

Catalog

Obv. Legend as indicated. Laureate and cuirassed bust right, imitating regal halfpence of George III.

Rev. AUCTORI: CONNEC: / INDE: -:- -:- ETLIB:. Liberty/Columbia/Connecticut seated left on globe, holding olive branch and pole topped by liberty cap; grounded shield with state arms (three grape vines) beside. In exergue, 1785.

All reverse die axes are 6 o'clock.

Miller 4.4-C

- 31. 28mm, 142.4 grains. ANS 2005.37.18.
- 32. 28mm, 131.4 grains. ANS 2005.37.19.
- 33. 28mm, 135.4 grains. ANS 2005.37.388.
- 34. 28mm, 142.4 grains. ANS 2005.37.389.
- 35. 28mm, 140.2 grains. ANS 2005.37.390.
- 36. 28mm, 131.6 grains. ANS 2005.37.391.
- 37. 28mm, 145.8 grains. ANS 2005.37.392.
- 38. 28mm, 127.6 grains. ANS 2005.37.393.
- 39. 28mm, 127.6 grains. ANS 2005.37.394.
- 40. 29mm, 139.8 grains. Painted die variety on obverse (4⁴ above C in left field and M in right). ANS 0000.999.19820.

CONNECTICUT COPPERS IN THE COLLECTION OF
THE AMERICAN NUMISMATIC SOCIETY

Plate IV: 1785
(Miller 4.4-C)



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NEW JERSEY COPPERS IN THE COLLECTION OF THE AMERICAN NUMISMATIC SOCIETY

Plate IV: 1786 (Maris 21-N to 23-P)

by

Oliver D. Hoover; Burlington, Ontario¹

Introduction

The partnership of Walter Mould, Thomas Goadsby, and Albion Cox received a two-year contract to produce three million copper coins for the state of New Jersey on June 1, 1786. Their coins carried the obverse type of a horse head and plow derived from the state seal and an American shield on the reverse. The legends give the Latin name of the state (NOVA CAESAREA) and present the national motto of the United States (E PLURIBUS UNUM) for the first time on any coin. By the Fall of 1786 the partners had fallen into disagreement and divided the coinage quota between a mint operated by Goadsby and Cox at Rahway, near Elizabethtown (now Elizabeth), NJ and another operated by Mould near Morristown, NJ. Further problems developed in 1788. Mould ceased his involvement with the coinage at this time and Cox faced litigation by his creditors and by Goadsby, which resulted in the seizure of the mint equipment. By the middle of the year, the remainder of the coining contract and the Rahway mint equipment had been obtained by Matthias Ogden, the bondholder for Goadsby and Cox. Despite having access only to dies dated 1786 and 1787, Ogden continued to strike New Jersey coppers until 1790, when the New Jersey state coining project came to an end.

The American Numismatic Society's holdings of New Jersey coppers are extensive, thanks to the New Jersey Historical Society's donation of duplicates from the Frederick Canfield collection (24 pieces) in 1931 and the purchase of a large part of the Harry Prescott Clark Beach collection (829 pieces) from Henry Grünthal in 1945. Grünthal, who had studied numismatics in Germany, later went on to become Assistant to the Chief Curator and Curator of European and Modern Coins at the ANS from 1953 to 1973. Most of the die varieties identified by Edward Maris in *A Historic Sketch of the Coins of New Jersey* (Philadelphia, 1881) may be found in the ANS collection.

On this fourth plate in a series to fully publish the New Jersey copper coins belonging to the American Numismatic Society, six come from the 1945 Beach/Grünthal purchase (Nos. 32 and 34–38) and two from the Canfield/New Jersey Historical Society donation (Nos. 31 and 33). one is a Canfield coin (No. 26). Coin no. 39 was later bought from Henry Grünthal in 1974 and no. 40 lacks any provenance information.

The Canfield coin no. 33 is notable for its black painted Maris die variety (PDV) in the right field of the obverse. Most other Canfield coins in the Connecticut and Massachusetts copper series have their die varieties painted in white.

¹ The commentary and catalog have benefited from discussion with Jack Howes, Louis Jordan, Philip Mossman, Roger Siboni, and Raymond Williams.

Catalog

Obv. NOVA CÆSAREA, around. Head of horse right, above plow right; in exergue, 1786.

Rev. *E*PLURIBUS*UNUM*, around. American shield emblazoned with a field of argent, six pales gules, and a chief azure.

All reverse die axes are 12 o'clock.

Maris 21-N

31. 28mm, 149.2 grains. ANS 1931.58.510.

32. 28mm, 133.9 grains. ANS 1945.42.666.

Maris 21-O

33. 28mm, 149.2 grains. Maris PDV ("21 O") in right field. ANS 1931.58.510.

34. 28mm, 166.8 grains. ANS 1945.42.667.

Maris 21-P

35. 28mm, 142.2 grains. ANS 1945.42.668.

Maris 22-P

36. 28mm, 119.9 grains. ANS 1945.58.670.

Maris 23-P

37. 28mm, 147.5 grains. ANS 1945.42.671.

38. 28mm, 154.4 grains. ANS 1945.42.672.

39. 28mm, 148.3 grains. ANS 1974.177.5.

40. 28mm, 155.5 grains. ANS 0000.999.28475.

NEW JERSEY COPPERS IN THE COLLECTION OF
THE AMERICAN NUMISMATIC SOCIETY

Plate IV: 1786
(Maris 21-N to 23-P)



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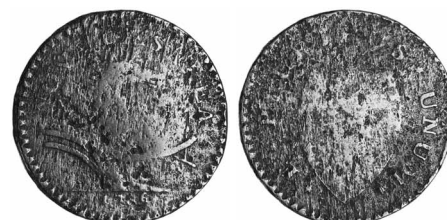
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MASSACHUSETTS CENTS IN THE COLLECTION OF THE AMERICAN NUMISMATIC SOCIETY

**Plate IV: 1788
(Ryder 11-C to 13-N)**

**by
Oliver D. Hoover; Burlington, Ontario¹**

Introduction

Unlike the mint operations of Vermont, Connecticut, and New Jersey, that of the Commonwealth of Massachusetts was not licensed to private individuals, but was instead treated as a public project of the state. An Act of October 16, 1786 provided for the building of mint facilities and the production of copper coins under the direction of a Master Workman, a position granted to Capt. Joshua Wetherle of Boston in 1787. The dies of 1787 and early 1788 were executed by the Boston engraver, Joseph Callender. Those of later 1788 were cut by Jacob Perkins of Newburyport after the state decided that Callender's fee was too high. All of the coins are denominated as cents and half cents in accord with a federal resolution of July 6, 1785 that divided the Spanish milled silver dollar into 100 cents. On the obverse they depict a standing Indian derived from the state seal. A displayed eagle with an American shield appears on the reverse in emulation of the Great Seal of the United States, adopted in 1782. Unlike the legends on other contemporary state coinages, those on the Massachusetts coppers name the Commonwealth of Massachusetts in English rather than Latin. The coinage came to an end in mid-January of 1789, after the mint's stock of copper was depleted and it was discovered that each coin cost more than double its face value to produce.

The vast majority of the die varieties identified by Hillyer Ryder in "The Copper Coins of Massachusetts," in *The State Coinages of New England* (New York, 1920), pp. 69-76, can be found in the cabinet of the American Numismatic Society. The richness of the collection can be attributed in large part to the purchase of 37 Massachusetts cents and 13 half cents from Carl Würtzbach in 1943 for \$1000. Würtzbach had been the twelfth president of the American Numismatic Association (1917-1919) and wrote several articles on colonial coins and Hard Times tokens. Out of the ten coins on this fourth plate in a series to publish the Massachusetts coppers in the ANS collection, eight come from the Würtzbach purchase (Nos. 30-36, 38, and 40). Coin nos. 37 and 39 come from the collection of Frederick Canfield, who is perhaps best known for his remarkable collection of Connecticut coppers. The New Jersey Historical Society loaned and subsequently gave these Massachusetts cents along with many of Canfield's Connecticut pieces to the ANS in 1931.

Both coins from the Canfield collection bear painted Ryder die varieties (PDV) in the left field of the obverse. Coin no. 37 is especially interesting as the incorrect variety has been painted onto the coin.

¹ The commentary and catalog have benefited from discussion with Louis Jordan, Philip Mossman, Mike Packard, and Raymond Williams.

Catalog

Obv. COMMON * WEALTH, around. Indian standing left, holding bow in left hand and arrow in right.

Rev. MASSACHUSETTS, around. Eagle displayed, on breast, American shield emblazoned with a field of argent, six pales gules, and a chief azure; incuse CENT on chief; olive branch in right talon and bundle of arrows in left; in exergue, 1788.

All reverse die axes are 12 o'clock.

Ryder 11-C

31. 29mm, 158.4 grains, ANS 1943.9.38.

Ryder 11-E

32. 29mm, 138.2 grains, ANS 1943.9.39.

Ryder 11-F

33. 29mm, 157.8 grains. ANS 1943.9.40.

Ryder 12-H

34. 29mm, 146.7 grains. ANS 1943.9.43.

Ryder 12-I

35. 29mm, 154.1 grains. ANS 1943.9.42.

Ryder 12-K

36. 29mm, 145.3 grains. ANS 1943.9.44.

Ryder 12-M

37. 29mm, 134.5 grains. Incorrect Ryder PDV ("7 M") in left field. ANS 1931.58.408

38. 29mm, 154.3 grains. ANS 1943.9.45.

Ryder 13-N

39. 29mm, 153.5 grains. Rydern PDV ("13 N") in left field. ANS 1931.58.409

40. 29mm, 173.6 grains. ANS 1943.9.46.

MASSACHUSETTS CENTS IN THE COLLECTION OF
THE AMERICAN NUMISMATIC SOCIETY

Plate IV: 1788
(Ryder 11-C to 13-N)



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